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ABSTRACT

Social invention is defined as any law, organization, or procedure that changes the ways in which people relate to each other, either individually or collectively. The author discusses the dynamics of social invention and proposes specific social policy changes needed in Canada in such areas as mental health, educational outreach programs, and social science research. The second half of the book catalogues historically significant social inventions and proposes an agenda for social inventions in the future. (MPB)

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SOCIAL INVENTIONS

SASKATCHEWAN NEWSTART

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SOCIAL INVENTIONS

D. Stuart Conger

SASKATCHEWAN NEWSTART
PRINCE ALBERT, CANADA

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DSC

I. SOCIAL INVENTIONS AND SOCIAL PROGRESS

We are justly proud of the scientific progress that we have made in the past 100 years. It has been said that the way people lived at the turn of the century was more similar to the style of life in Biblical times than to life in the present day. To substantiate this assertion, several examples have been offered: the fact that the common conveyance was by means of a donkey in Christ's time, and the horse in 1900, differs greatly from the automobile or airplane of today. Again, most major advances in medicine have been made since 1900, such as Salk vaccine, insulin, tranquilizers, antibiotics, chemical contraception, and many surgical procedures. Communication has greatly improved over the years with the invention of writing in 3000 B.C., printing in 1450 A.D., radio in 1901, and television in 1930.

In all the ways that mechanical, chemical and electrical technology affect our lives we have progressed a great deal. On occasion our technological progress has been frightening and potentially destructive of our environment and ourselves, and it has been suggested, therefore, that we hold up or arrest scientific development.

In the interests of society, we should not stop scientific invention, but rather concentrate on the invention of better methods for the proper functioning of society.

Canada needs to make social inventions to alleviate its social problems. When we compare our problems with those of Biblical times, we find few basically different ways of coping with the problems in the past 2000 years. Some of our solutions are more systematic and perhaps more humanitarian, but otherwise they are not very different.

Definition of Social Inventions

What is a social invention? A social invention is a new law, organization or procedure that changes the ways in which people relate to themselves or to each other, either individually or collectively. Examples of laws that are social inventions include the Poor Law of 1388, which first gave the poor the right to relief, the Indenture of Children Act of 1601, which spelled out the terms under which children were bound to another person or family, the English Bill of Rights in 1689, the Compulsory School Attendance Act in Prussia in 1717, the Swiss Unemployment Insurance Act of 1789, the Secret Ballot Act of 1872 in England, or the laws against cruelty to children that were enacted in the United States after 1875, at which time the New York Society for the Prevention of Cruelty to Animals demonstrated that it was possible to prosecute parents for the abuse of children under laws against cruelty to animals. (We had laws to protect animals before we had them to protect children!)

Examples of organizations that were important social inventions would include the following:

- schools in Sumer in 2500 B.C.,
- law courts in the same country in 2400 B.C.,
- House of Commons in 1300 A.D.,
- labour union in England in 1696,
- penitentiaries in Rome in 1700,
- adult schools in Wales in 1754,
- Y.M.C.A. in England in 1844,
- Children's Aid Society in New York in 1853,
- Red Cross in Geneva in 1864,
- Teachers Colleges in New York in 1894,
- Service Clubs in Chicago in 1905,
- Boy Scouts in England in 1908,
- United Appeal in Cleveland in 1913,
- Alcoholics Anonymous in Akron, Ohio, in 1934.

Procedures that represent social inventions would include:

- charity, 2100 B.C.,
- democracy, 510 B.C. in Athens,
- municipal system, 100 B.C. in Rome,
- licensing of teachers, 362 A.D.,
- training of lawyers, 1292,
- oath to tell truth to the courts, 1327,
- Hansard (the written record of debates in the House of Commons) in 1608,
- formal steps in teaching, 1838,
- probation in Boston, 1841,
- I.Q. tests in Paris, 1905,
- programmed instruction in U.S., 1957,
- computer assisted instruction in U.S., in 1960.

A social invention such as the law court, school, municipal government, or prison, spawns many ancillary inventions that ultimately create a social system. For instance, the social system developed around the civil law court includes the judge, jury, lawyer, plea, coroner, justice of the peace, code of law, law schools, etc. Each component of the system was itself an invention, but adapted to fit the system.

Each social system comprises a series of social inventions. Some systems are relatively well developed - such as education, while other systems - such as intergroup relations - have so few methods to rely on that the system is more of a constellation of problems than of solutions. It is true, however, that education is much criticized at present although its shortcomings may not be nearly as severe as the shortcomings of our health system that does not deal well enough with numerous ailments, including addiction, acne, cancer, asthma, arthritis and mental illness.

The essential difference between these two systems is that medicine has developed a system for inventing better methods of curing and preventing disease and people recognize this and support medical research. On the other hand, education does not have a system for the invention of new methods of education, although there is some investment in educational research, and there are in Canada at least a few centres doing important educational experimentation. Other social systems such as welfare and corrections are very stable as far as their technology is concerned because they have not established research laboratories at all, and hence, improvements in these areas can hardly be expected except at a very slow rate.

Need for Social Inventions

The Special Senate Committee on Poverty recognized the need for new approaches to social problems when it wrote that "the social welfare structure, so laboriously and painstakingly erected in Canada, has outlived its usefulness."

The Committee further stated:

> "The whole welfare system, at all levels, costs Canadians more than six billion dollars a year, yet it has not significantly alleviated poverty, let alone eliminated it. Welfare rolls have not diminished. The problems grow, costs go up, and up, and up, and will, in time, suffocate the taxpayer."

Other social problems also bespeak the need for new social inventions. Our approach to unemployment is still largely to blame the unemployed for being without jobs. The fact that we train and re-train some 300,000 adults each year is mute evidence that we consider their unemployment to be their lack of skill. Our approach to language training is very inadequate, and can only be understood as a manifestation of racial intolerance. We know that our correctional institutions do not reform. We have no answer to marriage breakdown, except separation and divorce.

Some 270,000 Canadians suffer from alcoholism and the average working alcoholic loses two to three weeks annual working time because of his addiction. It is said that the majority of serious motor accidents are caused by drivers that are impaired. There is an urgent need to invent a cure for this social disease.

The first strike took place in 427 A.D. when the Plebs struck for certain rights. We still have not invented a better method of resolving labour disputes. Striking Canadian workers usually lose 5,442,000 working days each year in about 535 strikes. Ironically enough, we are not even experimenting with new methods of resolving strikes.

In expressing their desire to overcome these problems, politicians attempt to capture the essence of national social objectives in a phrase

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such as, "elimination of poverty", "War on Poverty", "the just society", "equality of opportunity", and "new deal for people". The process of developing enabling legislation often distorts these ideas to accommodate existing legislation, jurisdictions and constitutional prerogatives; but damaging as that may be, it is in the implementation that the real ruin sets in. By the time a program is made operational, it bears little relationship to the original objective of the politician which was intended to do something for the people. Three main factors wear away the promise and blunt the intent of the legislation.

Consideration of the war on poverty illustrates a first reason. The "action" in the war on poverty has been limited according to the usual jurisdictions of federal, provincial and local government, with each level divided again according to departments within those jurisdictions. For instance, at the federal level, different agencies and operating departments have responsibility for different aspects of poverty: Secretary of State; Manpower and Immigration; Health and Welfare; Regional Economic Expansion; Indian Affairs and Northern Development, to name but a few. There is no focus of responsibility and authority. The result is the "cop out" phenomenon, whereby each agency interprets its legislation in such a way as to narrow its area of involvement as much as possible and diligently recognizes the jurisdictional prerogatives of other agencies. Thus, no comprehensive planning or programming can be achieved. With similar jurisdictional problems at other levels of government, the War on Poverty looks more like a guerilla war than a National Crusade.

But if the complex nature of government in our federal system can not frustrate the intent of the legislation, a second factor adds its influence. Policy formulation is placed mainly in the hands of economists who translate social problems into economic problems and limit program conceptualization to allocation of money and other resources. Partly because of the predominance of economic thinking and of economists in the higher echelons of the federal civil service, the social objectives of the government become translated into economic objectives. These are then expressed in economic programs, such as manpower development, labour force participation, job creation, industrial and economic development, and incentives to industry for the employment of native people. The economic tools of money and resource allocation become ends in themselves, rather than means to the achievement of social goals. Economic development programs are necessary but as substitutes for social development programs, they will not in themselves resolve the problems of poverty. The fallacy in the reliance on economic development seems to be in the expectation that the jobs created by industrial and regional development will be filled by the poor indigenous to the area; this does not happen unless significant efforts are made to motivate, train, place, counsel and sustain such people in their preparation, entry and adjustment to the work environment. There are numerous examples of industrial development creating new jobs with labour and staff imported to fill them, while the indigenous poor remain untrained, unemployed and continue to subsist on transfer payments of one sort or another.

At the implementation level, a government that wants to diminish the existence and seriousness of social problems such as poverty, illiteracy, racial strife, unemployment and crime, usually either,

1. re-organizes the delivery of services to the people, or,
2. intensifies the use of present methods of casework, training, etc.

There is at present a serious gap between the national desire to produce social change on a massive scale and the necessary educational, welfare, technological and manpower resources to meet this objective. More than money is needed; more than re-allocation of resources is needed; a change in approaches, methods and institutions is required.

Canada needs better methods of human and social development to achieve a just and equitable society; neither surveys nor armchair techniques can create them. They can be developed only by means of action-research, which conceives, develops, tests and evaluates various methods in real life situations among the people. Experience with manpower retraining programs has proved that training, while necessary, is frequently not enough to enable the poor person to extricate himself from poverty. The multi-faceted problem of poverty must be attacked by an integrated and comprehensive program of services. This requires a marked change on the part of many social institutions currently providing single solutions based upon the methods of a single profession; there is a need to develop multi-disciplinary integrated programs to deal effectively with poverty. Our social problems are going to be with us until we invent better solutions. However, it is impossible to alleviate these problems when no positive action is being taken to provide possible solutions.

Some of our social problems in Canada do not have a system of social technologies to provide relief and hence we can anticipate continued frustration with little hope of improvement. A critical example of this is the burgeoning problem of racial/linguistic discord in Canada. The social technology for dealing with this problem does not exist and no real efforts are being made to develop it. Among the needed methods are vastly improved methods of (1) teaching languages, (2) overcoming prejudice, (3) creating and sustaining dialogue, (4) fostering equality between groups, (5) etc. The present methods that are available are so crude that while they may be used to force progress in one area they create a backlash in another. Thus, for instance, efforts to make more people bilingual apparently increase prejudice, and, therefore, our programs in the entire area of racial/linguistic reconciliation amount to a zero sum game. The elements or components of this system, therefore, act to maintain the set status quo rather than effect some progress.

Our present systems of law, education, welfare and municipal government can be directly traced back two, three, four or five thousand years. Changes over the years have represented important but only secondary inventions that have modified the system; however, they have not created entirely new systems. Furthermore, social systems, as a rule, operate as monopolies which, of course, tend to be less susceptible to change or replacement. The citizen does not have a choice of school, jail, court or welfare agency to attend.

The educational institutions were invented in Sumer in 2500 B.C., teachers contracts in 445 B.C., State supported schools in 75 A.D., licensed teachers in 362, schedule of teachers salaries in 376, teacher training in 1672, classroom instruction in 1684, vocational education in 1695, compulsory attendance in 1717, adult schools in 1754, public schools in 1763, kindergartens in 1837, formal steps in teaching in 1838, educational tests in 1845, guidance counselors in 1909, teacher aides in 1953, educational television in 1956, programmed instruction in 1957, and computer assisted instruction in 1960. All of these inventions, subsequent to the invention of the schools and universities, were ones that made education more efficient, but have not changed the essential nature of the institutions.

If you consider transporation, you find the citizen has several separate choices of systems that he can select, e.g., bus, train, car, snowmobile, and motorcycle, which involve powered land transportation alone. Each of these systems is separately owned and operated, or manufactured and sold, thus giving the citizen real choice. Each of these represents a prime invention that spawned its own system, e.g., the car prompted the invention of motels, credit cards, paved highways, service stations, drive-ins, driver training schools, traffic police, parking meters, shopping centres, and automobile associations, to name but a few.

When we look at education today we see some signs of people chafing at the monopolistic education system which includes schools, universities, colleges of education, departments of education, and teachers' unions. These act as a constellation interacting in mutual maintenance and stability. It has been said that it is easier to move a graveyard than to change a curriculum, and this describes well the slowness to adopt a new invention, even if it is compatible with the system. There are too many vested interests to contend with.

The invention of programmed instruction might lead to the recognition that education can be achieved outside formal institutional structures. This could lead to an acceptance that there are alternative sources of learning and then the separation of the certification of knowledge from the institutions that teach might occur. Thus, programmed instruction could be a very major social invention, but its potential may not be fully realized until it spawns its own educational system, or alternatively, is adopted by a more appropriate agency established for the advancement of learning.

For instance, because programmed instruction is essentially a self teaching method it does not require the stand-up teacher, but solely a person who can occasionally answer a question or explain a point at the request of the student. Furthermore, programmed instruction does not require a class of students at all, nor does it require a small class such as 35 students. Finally, it permits each student to learn simultaneously even though each student may be at a different point in his studies. All of these conditions are completely foreign to our present educational system that dictates what material will be covered on what dates, how many will be in the class, etc.

On the other hand, we do have another learning institution that allows people to study at their own pace, to be left alone unless they want help, and that accepts people who want to learn regardless of hair length or clothing style. This institution places no limits on the number studying. It is the ideal institution to use programmed instruction. It could be the alternative school for the student who can learn better by himself through programmed materials, books and other self teaching devices. This institution is the library. We could switch much of our educational programs to the libraries except for the fact that the schools have a monopoly on education. We could make great gains in educational progress and economy if we gave the libraries the same right to issue certificates of knowledge as the schools have. Students could be given the option of going to school or attending the library. Providing this alternative to the students and this competition to the schools could benefit society.

The individual social inventions that have made up our legal, educational, welfare and other social systems are important and have indeed contributed a great deal to society. None of us would want to live without the protection of police and a legal system that presumed us innocent, and accepted only rational evidence, nor would we want to live as illiterates, unable to read the paper, etc.

But society is far from perfect, and our social problems are greatly in need of solutions. Ten social inventions, however, will not be enough to cure 10 social problems. Although Banting and Best invented insulin 50 years ago as a cure for diabetes, medical research laboratories are still engaged in important research on the same illness. Perhaps it will take ten or twelve inventions to really cure diabetes. So it might be with each of our social problems.

It has been demonstrated that it takes about 50 years for a new educational invention to be used in half the schools. It is certain that other social institutions take just as long to adopt new improved methods.

Because of the monopolistic nature of our social institutions and systems, and their difficulty in adapting to new circumstances or achieving a significant measure of self renewal, it may be as necessary to invent new social institutions as to invent new laws or procedures.

At the same time, however, our social problems are growing in severity and people are no longer docile about being in jail, unemployed, poor, or discriminated against, and they are using television, strikes, boycotts, demonstrations and even violent means to draw attention to their problems.

Present organizations that are almost overwhelmed by the sheer demand to provide services on a minimum budget, can not be expected to invent new methods. Sometimes such agencies are not able to adapt sufficiently to adopt new social inventions. A similar situation would have been to expect the railways to invent a better alternative means of transportation. They were not even prepared to adopt the car when it was invented. We would still be in the railway age, and the car would still be an awkward means of transportation if the automobile had been given to the railways to develop or implement after it was invented.

Yet, this is precisely what is done with our social problems and innovations. If a new educational method, such as programmed-learning, is invented, which does not require a stand-up teacher, it is assigned to stand-up teachers to try it out, and naturally, they find it isn't very good.

For the same reasons there has been little progress in the reformation of criminals since Pope Clement invented penitentiaries in 1700. The reason is that research and innovation in prisons has been assigned to prison officials, and they are no more likely to come up with a new method than the railway might have invented the car. The invention of the prison was made by a Pope, not by people engaged in handling criminals, and better methods of penal reform will be made only by people who have no direct or indirect interest in maintaining the present system. Canada jails a disproportionately high number of its citizens relative to other countries in the western world. This rate of jailing, the rate of crime, the changing nature of crime do not auger well for the health and stability of the Canadian society. It is imperative therefore, that Canada undertake serious social experiments to develop new and better methods of improving present methods of dealing with crime and corrections.

The Need for Social Invention Centres

We know that we need research centres to find cures for medical ailments; experimental farms to develop cures for infestations and diseases of plants and animals; oceanographic research stations to study aquatic conditions, what we fail to see is that we need experimental stations to invent new ways of dealing with our social ailments.

Canada needs research stations to create new ways of:

1. alleviating poverty,
2. creating jobs,
3. teaching languages,
4. achieving inter-racial accord,
5. reducing crime,
6. increasing family harmony,
7. overcoming addiction,
8. curing mental illness,
9. providing adequate housing,
10. settling labor disputes.

This is not to say that we have made no progress in these areas in the past 2000 or 2,000,000 years. We have made some progress, thanks to the limited number of social inventions that have been made over the years, with little or no official support for the research activity. Why have we not supported social research centres to the same extent that we have funded scientific research?

There are five reasons why we do not have social invention centres:

1. We tend to see the problems of society such as poverty, unemployment, crime, and poor housing, as resulting from failings in human nature that should be addressed educationally, moralistically, punitively or tolerantly, rather than as ailments in need of more effective treatment processes.

2. We have not acknowledged the importance of social technology in developing our society over the years and hence the potential that social inventions have for the further improvement of society. For instance, we do not realize that schools, courts, legislatures and other institutions were social inventions that resulted in great social progress, and that it is possible to invent new institutions of similar value to overcome present ailments and further social progress.

3. We have vested interests in the way things are done now, and are apprehensive about the implications of any tampering with society. The disturbances in the courts and in the streets confirm in our minds that the people demanding changes in our social institutions are more intent on destroying our way of life than on the constructive development of it. We do not see these disturbances as signs of the need for inventing some improvements for society.

4. Social scientists are wary of attempting to create social inventions but generally prefer an analytic role rather than inventing things that are instrumental to change. Some social scientists, however, have invented certain important procedures including: intelligence tests, psychoanalysis, behavior modification and programmed instruction. The invention of new social institutions over the past 70 years have come from a wide variety of sources, such as the Boy Scouts, by a soldier; Alcoholics Anonymous, by an alcoholic; and service clubs, by a businessman. Thus, social scientists have invented what they could in the laboratory or the clinic, but it is a broader group that has invented the social institutions in the community. Both types of social inventions need to be made, either separately or in concert.

5. We do not understand the experimental process, and are horrified at the idea of experimenting with people - when in fact, people like to be experimented with because they get more attention from the researchers than they usually receive in their normal day.

Can You Experiment With People?

Some people believe that it is wrong to experiment with human beings. They argue that the researcher is "using" people for his own purposes and denying the subjects their own freedom, dignity and self-direction. They feel he is probably misleading these people or tricking them into believing or doing certain things that are contrary to their nature or integrity.

People do not want to be treated as "guinea pigs." This is a popular notion, but it is wrong. People envy the special attention that guinea pigs get. People resent being treated as part of the economic machine - they want to be treated as human individuals. Workers on the assembly line don't get this. Typists in a clerical pool seldom get it. A child in a class of 40 students doesn't get it. Subjects in social experiments do get the special attention of someone (the researcher) paying some attention to them, and being genuinely interested in their reactions. Indeed, the good feeling that the experimenter creates in his human guinea pigs, because he is interested in them, has been known to ruin good experiments!

It is possible to experiment with people, and they like it. The real problem is to experiment with the right people. To obtain required information on social problems such as prejudice, illiteracy, crime, etc., the experiments must take place with people who typify these problems. Furthermore, the experiments must take place where the action is. If, for instance, the research problem is to test hypotheses why people commit crimes, then the experimental study must be done where people commit crimes, and generally in the circumstances under which crimes are spawned. If, on the other hand, the experiment is to test new methods of reforming criminals then the experiments must take place in reform schools, prisons, halfway houses, or other appropriate circumstances. Certain experiments may be done in isolated social laboratories, but the ultimate social experiment must take place in normal circumstances if the researcher wants to find out what really happens.

Experimenting with people means that you assess them at some point in time, try a new program with some, and an old program with others, then you assess the people again to see if those who took the new program are any better off than those who took the old. Technically, you are not experimenting with people but with programs, because if you find that the people are no better off for taking the new program, you fault the program and say we have to find a better way or we have to make a better program.

We can be assured that people do not mind being subjects in human experiments. They will trade their co-operation in the project for being treated as human beings!

Saskatchewan NewStart experimented with up to 110 people in its laboratory at any one time. It traded two things for the co-operation of these adults, (1) a commitment to help them meet their objectives in further education, and (2) some greater attention to them as people. The first objective has the advantage of meeting the experimental subject's needs, and also as being the topic of research for NewStart. Thus, it is possible to experiment with different training methods while at the same time providing the subjects with the face validity of the work. It is also possible to explain to the students that they are subjects in an experiment.

Enormous sums of money are being spent on physical sciences and related areas, but at the present time in Canada little is being done to invent better methods of reducing poverty, and other social ills. These age-old problems are getting more serious and there is an immediate need for new methods of resolving our present social problems. The methods can only be invented by a process of action-research which conceives, conducts and evaluates new approaches in real life situations producing usable and effective methods.

Generations of Social Programs

Manufacturers of consumer goods, such as clothes and cars, have been able to design obsolescence into their products so that there is regular repeat business. Designers of social programs have been less attentive to the motives of their clients and do not exalt the client in the way that business suggests it does when it proclaims the customer is king. Certainly, no social agency would dare to provide an equivalent to "goods satisfactory or money cheerfully refunded." Most social agencies know that their services are not satisfactory and that there is seldom a cheerful relationship between client and agency.

The problem is not that the agencies fail to add a little "pizzaz" to their service, but rather, that they do not bring out new improved models or methods in keeping with the increase of social science knowledge, the development of social technology, or the changes in society itself.

As far as the relationship between agency and client is concerned, too often the delivery of social services is done either in a punitive manner or at best in an impersonal "businesslike" style, whereas business uses a more seductive approach.

These contrasting approaches are illustrated by the premises; the money spent on consumer research, improving the product, attracting the client and packaging information for the client; the trading versus begging relationship of clients to agency; pleasure versus puritan orientation of the agency; emphasis of the agency on building the client's self-image versus the humiliation of self-examination and revelation.

Inventions in education, penology, welfare, etc., have not kept up with the tempo of mechanical, chemical and electronic inventions.

It is a fact of commercial life that it is necessary to come up with a "new improved" something each year or season. But it is also understood that something "new and improved" will be introduced the following year. Sometimes an innovation is an improvement of substance, sometimes of style, and sometimes it is a failure. Occasionally the improvement represents a new generation of the product. Examples of such developments include the self-starter in automobiles (which in turn invented the woman driver); automatic timers for ovens, and instant electronic baking.

The Ford Motor Company undertook a great deal of technical and consumer research in designing the Edsel. This car, however, was not popular with the public, but fortunately Ford is a company and was able to discontinue this car. Had the Edsel been developed by a governmental agency (which of course is forbidden to err, and therefore can not acknowledge its lemons) it would still be in production and it would be given to under-developed countries as foreign aid or as a bonus for buying our wheat. Ford did not give up its consumer and technical research, and subsequently, developed good and popular cars such as the Thunderbird and Mustang.

We must do the same with our social programs. We must see them as "Generations" in the evolution of truly valuable and important social technologies. In education, tests, lectures, case study methods, audio visual aids, behavioral objectives, individually prescribed instruction, were important developments which must be continued and continually improved.

In psychotherapy; psychoanalysis, non-directive counselling, reality therapy, life skills, etc., represent "generations" in the art. Further generations must be developed.

In welfare and corrections, and particularly in race relations there has not been very much development of methods at all, let alone generations of these methods.

One of the problems that we face in prompting social invention is the lack of recognition that they are necessary. This is because of the lack of social invention technology, and the closeness between the social program and the political world.

People recognize that cancer can be cured only by medical research. The political issue here, therefore, is how much money is devoted to cancer research.

People and politicians (if they can be separated in this way), do not acknowledge that intergroup relations can be resolved through inventing better methods of learning languages, understanding, etc., rather it is seen as the need to face relationships and reality. What really is needed is a series of social invention centres to invent these better methods; not just once, but continuously.

The great advances of the nineteenth and twentieth centuries are based upon the development of procedures for technical invention - what we know as the scientific method. The social sciences have adopted the scientific method to evaluate practices, not to develop new social technologies. The process of social invention as practiced in curriculum development involves the following stages:

Stages of Development

1. Concept Study

This initial stage comprises a review of the nature of the problem area and attempted solutions to date. This includes a study of the theoretical and research literature, a study of the requirements of the situation, and assessment of various theories and methods of intervention. The concept study results in preliminary specifications for the desired outcomes, identifying the skills or other factors required to achieve the outcomes, and designing the broad strategies to achieve these goals.

2. Exploratory Development

This is the preparation of initial program strategies, methods and materials, and examination of them to evaluate the feasibility of the proposed solutions and determining their parameters. It may involve a reformulation of the concept study, but in any case, will result in more detailed specifications and cost figures.

3. Prototype Development

This stage comprises the preparation of detailed program strategies, methods, materials and evaluation system, and the training of staff to conduct them. Cost time and resource estimates are made and scheduled.

4. Pilot Study

This stage is the test of the new prototype which allows sufficient acquaintanceship with the problem and the prototype to permit necessary reformulations including the specification of logical alternatives.

5. Advanced Development

This stage is the redevelopment or further development of the entire program including the strategies, methods, materials, staff training program and evaluation system.

6. Program Experimentation

This comprises formally structured, systematic, experimental effort to test alternative program elements, or the value of the program with different groups or under different circumstances. This stage may involve repetition of testing, on all or selected components of the program.

7. Program Formalization

The program development process is essentially a sequence of trial-revision interactions with modifications after each test to successively approximate the consequences being sought. The cyclical nature of the process means that each stage to this point may have been repeated several times. The preparation of the program into a formal model which can be used elsewhere with predictable results must take place at the optimum time considering results of evaluation and urgency of need for the program.

8. Field Test

Once a satisfactory program model has been prepared it is then tested under ordinary operating conditions to determine the essential characteristics of the program support services required by the user in a field setting, and the interaction between the program and other programs and services in the institution or community. Some testing of content and process may be included in this stage.

9. Operational Systems Development

This stage is the preparation of the implementation and other systems that will be used by the institution expected to use the new methods. The systems are prepared for the implementers, the administrative support personnel and the monitoring agency.

10. Demonstration Project

This stage is the first major attempt to foster adoption of the new program. It includes joint sponsorship of the project by a potential user agency in which the operation systems are used.

11. Dissemination

This stage may take place at the same time as previous stages and involves the conduct of publicity, seminars, conference presentations, publication of books and other documents. This activity is necessary to get the relevant academic, professional and administrative reference groups in full support of the project's widespread adoption.

12. Installation

This final stage includes the provision of consulting services and staff training necessary for satisfactory adoption of the program.

II. INSTRUMENTAL VERSUS ORGANIZATIONAL SOCIAL INVENTIONS

For a decade or more many of our social institutions have received much criticism from the public, their clients and their staffs. An increasing flow of research studies casts very serious doubt on the minimal effectiveness of schools, penal institutions, welfare agencies, and other organizations that operate for the presumed welfare of all society. The agony of other important institutions, such as the church with a re-examination of its objectives, methods and organization, is also apparent in their search to be of more value to man.

Large bureaucracies are demonstrating their inadequacies with a variety of symptoms, These include the enormous time required to reach a simple decision, the apparent necessity felt by some dedicated public servants to "leak" secret documents, the continual reorganization of government departments, and their view that increased public relations will help gain public acceptance of certain unpopular measures. The best marketing and advertising programs could not sell the Edsell and the Ford Motor Company simply had to discontinue it and develop different and more acceptable automobiles. In contrast, our governments and social institutions with their power to legislate and regulate people are not as concerned with public reaction. It is a curious phenomenon of the day that although our social institutions are most certainly not achieving their objectives, our governments are consumed with a passion to force manufacturers to give and honour product performance guarantees. We need exactly the same type of guarantees from government agencies and other social institutions.

The essential difference between business institutions and social institutions is that in the former, the client is king and the employees his servants, whereas, in the latter, the client is the subject and the institution his master. The reason that it is this way is because most of our social institutions were invented without first inventing the procedural or instrumental methods that could make them function well. When they were finally set up, they did not attempt to invent better, constructive, relevant methods.

We must, therefore, look at the invention of organizations as greatly different from the invention of procedures.

A procedural social invention is an instrumental social invention in the sense that it is a method that might be used by many organizations in many contexts.

Examples of instrumental social inventions include examinations, grades, instructional methods, curriculum design, mental tests, guidance, probation, instructional T.V., programmed instruction, CAI, behaviour modification, and psychoanalysis.

Examples of organizational social inventions include schools, service clubs, mental health association, John Howard Society, women's institutes, child guidance clinics, jails, community colleges, Y.M.C.A., and churches.

Voluntary organizations such as most churches, service clubs, Boy Scouts, and mental health associations put themselves on the market place to be valued and to survive or fail in accordance with the service they provide.

Government managed institutions on the other hand, such as schools, prisons, and government departments themselves, have no such test, and accordingly, do very little to invent better ways of providing their service. They are placed in the enviable position of judging their students or inmates rather than being accountable for their improvement. The seemingly total lack of one single instrumental or procedural invention to increase the reformation of inmates since the invention of workhouses in the 1400's and prisons in the 1700's, is mute testimony to the stagnation of correctional activity. All that has been done in the name of penal reform has been the replacement of physical punishment with psychological punishment within the prisons.

In the case of education, on the other hand, we may see that a reasonable number of procedural inventions have been made in recent decades including programmed instruction, case study method of teaching, computer assisted instruction, standardized achievement tests and instructional television. The fact that these have not been widely used is a reflection of the fact that the organization was invented first.

Once an organization is invented it seldom concerns itself with inventing instrumental or procedural methods for the delivering of its service or objectives, rather, it becomes consumed with developing methods of self maintenance and extension. The restriction of employment to teachers in educational institutions, to social workers in welfare agencies, etc., is intended to preserve territorial imperatives and prevent cross breeding of ideas or methods. Thus, the invention of teachers' contracts, teacher training institutions, jurisdictions, etc., become the focus for social inventions of the organization. It is to be expected, therefore, that most instrumental social inventions will be made outside the institutions in which they should be utilized. This is why we need social invention centres that are separate from service delivery institutions. It is because of the inherent threat to the latter of a new procedure, however, that they do not advocate such research centres. A very interesting example is the College of Education that conducts research on teaching - even on new methods - but does not implement the new methods in its own institution! The difficulty of a social institution in adopting new ways raises the question of the value of establishing alternative social institutions and removing the monopoly given to most existing social institutions.

The use of audio visual methods of instruction is a very interesting example. The advantages of visual methods are legendary - "A picture is worth a thousand words" - and in recent decades a number of overhead projectuals, films, etc., have been prepared as instructional aids to the teacher. Unfortunately, however, while almost every school has at least one movie projector and an overhead projector, most audio visual materials are used only occasionally. Those who have watched programs such as University of the Air know the minimal acceptance that teachers have made of audio visual methods. This program utilizes the television camera only to take you to a professor in front of the chalkboard and leave you there without any instructional methods that are suitable for television. Documentary television programs reviewing the history of nations provide a far superior method of teaching social studies than the common practice of memorizing dates of successions of kings and queens. Yet the old practice too often persists.

Recently, Sesame Street has demonstrated the value of audio visual directed learning in contrast to audio visual assisted learning. What this means is that the invention of audio visual means of instruction required its own institution (television) to be properly used in fulfilling its purpose. Many other instrumental social inventions are under-used or misused because they are virtual prisoners of old social institutions. Examples of such procedural inventions are:

1. Programmed instruction which is capable of teaching virtually all knowledge without the aid of teachers, classrooms or schools.

2. Achievement tests which are capable of certifying a person's knowledge regardless of whether he got it in school or elsewhere.

3. Human relations training, affective education or Life Skills training that is offered only in adult remedial programs when it should be a part of primary education.

4. Psychological tests that should be used in schools, welfare agencies, etc., to help understand the clients better.

5. Vocational aptitude, ability and interest tests that should be used universally to help students make career decisions.

6. Audio visual directed educational programs which could greatly increase the comprehension of subjects by students.

7. Computer assisted instruction that provides interactive relationship between the student and knowledge.

Each of these instrumental inventions has been only partially implemented in a few institutions and this demonstrates the difficulty of putting new wine in old bottles. The bottles don't get damaged, they just sour the new contents.

Very few organizational inventions have been based on instrumental inventions. One example is the child guidance clinic invented in 1896 by Witmer, which integrated several instrumental inventions, including: psychodiagnosis, case histories and remedial instruction.

Interestingly, a new social organizational invention in 1907 (the Mental Health Association) widely promoted the creation of child guidance clinics, although typical of organizations, the association did not itself create any instrumental social inventions.

In recent years we have seen a great explosion in the number of social organizations, including those typified by the following: Company of Young Canadians, LIP projects of all descriptions, community coalitions, social, welfare and health agencies.

Yet not one of these was based on a social invention. To a large extent they were intended to re-distribute political and perhaps economic power and they largely failed in this because they did not have a new method of achieving re-alignment of power. To a very large extent they relied on three standard approaches: confrontation, negotiation and welfare.

One of the pressing needs for a new social invention today is a method of achieving equality between various segments of society. It is a reflection of the way in which organizations bind up jurisdictions that we should assign the major responsibility for equalizing to education and give the schools the job of undertaking a massive re-education program, when in fact the schools here already demonstrated their inability to educate the disadvantaged segment of the population.

Only after several years of adult retraining which was ineffective on many counts, including a drop out rate of over 65%, was there an acknowledgement that some methods of training adults needed to be created. This gave rise to the Canada NewStart Program in 1967. The first invention of this program was an organizational innovation that involved both federal and provincial departments entering into equal partnership by means of joint ownership and control of an incorporated society. In this way they were able to overcome the constraints of their own jurisdictions to experiment in comprehensive human resource development methods. The decision to do this was eloquent acknowledgement of the crippling constraints placed by dividing work rigidly into jurisdictions and assigning it to monopolistic institutions. Not surprisingly, however, the NewStart corporations worked only at devising new methods and not at inventing new organizations that could achieve human resource development objectives more effectively than present institutions. Saskatchewan NewStart, for instance, invented methods of individualized instruction and life skills training.

Most organizational inventions have been made to arrange or deliver certain activities in a new or more concerted manner. Each uses instrumental inventions, but does not prompt the invention of new methods (a charitable foundation may do so, but not in the area of how foundations should work, although the Ford Foundation recently has evaluated its activities in promoting changes in other institutions).

This is not to suggest that social institutions do not recognize that they have problems with their clientele or jurisdiction. The Boy Scout movement, for instance, experiences a tremendous drop-off in interest as compared to the very successful Cub program. Churches are worried about the loss of youth and indeed almost entire congregations. These institutions, however, largely try to regain their losses by re-arranging their standard methods into "new" programs rather than inventing new methods.

In the field of human resource development, a number of new programs have been instituted, including:

1. Basic Job Readiness Training Program.
2. Work Activity Program.
3. Manpower Corps Program.

Each program permits a mix of training and work experience, and they use similar methods. This is an example of separate but similar programs established by different Departments at the same level of government for the same type of people.

The Manpower Corps Program is sponsored by the Department of Regional Economic Expansion; the Work Activity Program is sponsored by the Department of National Health and Welfare, and the Basic Job Readiness Training Program is sponsored by the Department of Manpower and Immigration.

A caution must be expressed to those agencies that attempt to introduce new programs which are simply old methods in a new organization format: the intentions of these programs are more likely to be great in rhetoric and modest in achievement.

An even greater caution must be expressed to those who expect much through re-organizations of government departments, educational institutions, or other organizations. They may result in greater efficiency once the confusion of the re-organization is overcome, but it would be unrealistic to expect that a re-alignment of old functions would result in dramatic improvements in program effectiveness.

Prisons represent an organizational invention without an instrumental invention. In fact, this is what is wrong with prisons - they are essentially manning depots for criminals rather than correctional institutions. Prisons were invented as havens for convicts to provide an alternative to harsher treatment, like hanging or banishment to Australia. I would predict that we will continue to witness the problems of disturbances in prisons and very high recidivism until such time as we do make instrumental social inventions in the correctional field.

Thus, there is a great need for change, but the fact is, we do not have the methods to achieve the changes. It is not essentially a problem of delivery of services (an organizational problem), but rather that of better services (an instrumental problem).

How do we determine if we need an instrumental or organizational social invention? The following questions will help.

1. Are methods of resolving the problem available, but people are not using them? (Delivery of services.)

2. Are present methods ineffective with large numbers that try them? (Instrumental.)

We have seen that there is a process of the creation, first, of an instrumental invention and then the organizational invention required to implement it. On the other hand, an organizational invention does not lead to instrumental invention. This latter must be prepared outside the framework of an agency concerned with implementation of social inventions. The creation of social inventions that are organizations may be made to implement known methods (or non methods, such as incarceration). We should not expect new organizations to do things differently, therefore, but rather to be a better method of getting known things done. This would also be true of organizational social inventions. It should be pointed out, however, that in numerous cases, a re-organization is undertaken when in fact what is required is an instrumental innovation. Because of this incorrect definition of the problem, much confusion and inefficiency occur with no resolution of the problem (although it may seem lessened as it becomes overshadowed by the new problems created by the re-organization).

When we look at a social problem and are tempted to see the solution in terms of re-organization, I suggest we look again to see if the real requirement is instrumental.

III. ORGANIZATION - FREE HUMAN SERVICES?

The Special Senate Committee on Poverty was very critical of the organizations that deliver social welfare services. In the Foreword to their report, the Committee wrote:

> The social welfare structure so laboriously and painstakingly erected in Canada over the past forty years has clearly outlived its usefulness. The social scientists who have studied it, the bureaucrats who have administered it, and the poor who have experienced it are of one mind, that in today's swiftly changing world the welfare system is a hopeless failure. The matter is not even controversial; everybody's against it. But what is to take its place?[1]

The same criticism and the same question may be made in respect to many of the other social institutions that were established for the presumed welfare of Canada and Canadians. The school system, the penal system, the mental hospital system, and perhaps even the church, among others, merit the same judgment and the same perplexity.

With regard to education, David Livingstone wrote, "The modern history of efforts aimed at fundamental change of educational systems has been one of almost continual failure."[2]

Describing social agencies generally, Illich observed that, "Institutions both invite compulsively repetitive use and frustrate alternative ways of achieving similar results."[3]

The Special Senate Committee did not answer its own question to its satisfaction. It was able to propose an economic answer (guaranteed annual income) for the economic part of the welfare problem, but it was not able to provide an answer for the social part. This paper will attempt to outline some suggestions in that direction.

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[1] Special Senate Committee on Poverty, Poverty in Canada, Ottawa, Information Canada, 1971, p. vii.

[2] Livingstone, David W., Some General Tactics for Creating Alternative Educational Futures, Interchange, Volume 4, #1, 1973, p. 1.

[3] Illich, Ivan, Deschooling Society, New York, Harper and Row, p. 56.

Much of the criticism levelled at our social institutions has been concerned with two things: (a) the social procedures such as teaching, casework, worship, (b) the organizational procedures of the agency.

Organizational procedures are usually seen as the prime villain in the deficiencies of the social institutions. The bureaucracy of government, education, welfare, and even the church, has been widely criticized. Frequently, professionals in these organizations see organizational procedures as negating the intent of the social procedures of the agency.

The conflict between organization and man has been recognized by attempts to introduce human relations programs, participative management and job enrichment in industry; humanized learning and affective learning in schools, but in actual fact, no substitutes have been found for standard organization procedures and these newer approaches have basically been a thin and patchy sugar coating.

Considering the almost inherent conflict between organizational and social procedures, the necessity of organization itself must be questioned. At first glance such a challenge seems to smart of anarchy, but on reflection it is possible to note a number of neophyte organization-free social delivery systems.

Educational television programs, such as Sesame Street and the Electric Company, and counseling programs such as radio open line shows, crisis centers, computer assisted counseling, and drop-in centers are organization-free social systems. These are similar to the "convivial" organizations that Ivan Illich[4] described and advocated, in contrast to traditional institutions which he described as "addictive".

At perhaps a midpoint between organization-free and organization-controlled is the Open University of the United Kingdom, that has avoided many of the bureaucratic structures and constraints of the standard university.

The Open University "multimedia learning system loosely fits the model of a nationally sponsored educational innovation outside of the traditional institutions. The Open University employs a coordinated mixture of instructional techniques including (a) television and radio programming, (b) correspondence and home study programs with kits, (c) face to face meetings with other students and with tutors in specially provided local study centers, (d) short residential courses. Central to the Open University idea are the 250 local study centers equipped with broadcast receiving equipment, audio visual media and tape libraries - in other words, multimedia learning centers integrated with the main university center which prepares the material to be used."[5]

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[4] Op cit., p. 53-55.

[5] Continuing Education for Adults, Syracuse University, #154, p. 2.

The difference between the organization-free social program of Sesame Street and radio hotlines, on the one hand, and Open University on the other, is that the former are totally organization free in the delivery of their service. The Open University has established a new delivery system with a minimum of organizational constraints on the client, and with several options for his utilization of their varied delivery services.

Open University is not simply a new program or course, rather, it is an entirely new system with new procedures for acceptance (not selection) of students, teaching, counseling, etc. The phenomenal success of Open University points to the practicality of creating alternative delivery systems for all social systems that are having difficulty.

It is a trite practice of our time to describe almost all difficulties between individuals, groups or organizations as communications problems. The truth in this may be the possibility that these problems rely on outmoded media for communication. The inappropriateness of the written word in communication in social institutions is perhaps best illustrated by the fact that most written messages for clients of social institutions are phrased in language at a difficulty level equal to that of about second year university, yet most clients are literate at a level less than high school.

The organization-free social institutions do not use the written word, while Open University uses a multimedia battery of communication methods. It might be reasonable to assume that with further experimentation with organization-free social programs, society will begin to phase out organization-directed programs in favor of program-directed organizations with new delivery systems such as exemplified by Open University.

In some cases the innovation may be most effective in its organization-free state. In other instances it may be desirable to integrate a number of innovations into one system. In the case of some social inventions, it may not be possible to fully assess the merits of the new procedure until it has been tried in a traditional setting, an organization-free setting, and a new program-directed system.

Traditionally, we have thought of innovations providing incremental improvement in a social system. Perhaps it is possible for the same invention to prompt improvement of geometric proportions when used in an organization-free manner, or in a delivery system designed specifically for the new invention.

A single invention may have profound implications for a major improvement in the human, social or political condition, but it may take many decades before it is used very extensively. For instance, the ombudsman was first invented in Sweden in 1809. The second ombudsman position was not created until 1919 (110 years later) in Finland. The third in Denmark in 1955, and subsequently in 1962 Norway and New Zealand appointed ombudsmen. Since that time many governments have created such positions.

There are numerous reasons regarding the long delay between the first invention and the widespread adoption, and these have been documented in reports of diffusion and adoption of innovations in education, agriculture, and elsewhere.

The general findings are that the early adopters are more affluent, progressive, cosmopolite, and capable than the later adopters or non-adopters. Where they are employed in an organization (such as a school board) the employer provides a basic philosophy, organization structure, and risk capital that favor experimentally adopting new methods.

The characteristics of an innovation that is adopted early have been identified by Rogers and Shoemaker.[6] The several characteristics of innovations, as sensed by the receivers, which contribute to their different rate of adoption include:

1. Relative advantage over present methods.
2. Compatibility of the innovation to existing values, past experiences, and needs of the receivers.
3. Complexity or simplicity to understand and use.
4. Trialability or the degree to which the innovation may be experimented with on a limited basis.
5. Observability or the extent to which the results of an innovation are visible to others.

A single invention that can readily be fitted as a component into an ongoing system is more likely to be adopted early in contrast to an innovation that requires a change in the system. The latter may require a series of inventions that will result in several changes in the system. This has been recognized in the twelve stage development model described in chapter one. Stage nine includes the development of the operational system required by the innovation, including the needs of the implementers, administrative support personnel, and the monitoring agency.

The "systems approach" to social inventions is extremely important because there is not likely to be a single cure invented for complex social problems. Furthermore, the stagnation of many social institutions inhibits the development of a new system in favor of adding on (however reluctantly) new methods that might become available.

The experimental testing of a new invention can be greatly affected by the context in which it is tried. The factors that bear upon the results include the resources allocated, the dedication of the staff of the organization trying it out, the philosophy and organization of that group, the image of the organization in the eyes of its clientele, the particular clientele that it serves (which has perhaps been attracted because of the nature of current, rather than the experimental program). It is quite possible that the new experimental procedure and the other procedures of the agency have some self-cancelling features which harm the tender new social invention trying its first wings.

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[6] Rogers, Everett M., Floyd F. Shoemaker, Communication of Innovations, New York, Collier MacMillan, 1971, 476 pp.

The more fundamental the nature of the innovation the less the likelihood that it will be easily inserted into the ongoing program of an agency. Rather, it may be necessary to invent a series of new methods that will present an entirely new way of doing things. It is for this reason that the experimenters need their own experimental agency that they might invent all of the required components.

Many of our social agencies are engaged in the maintenance of their clientele and few deal with development of them so that they no longer need the agency.

A good example is a welfare department which doles out money, advice, etc., but does not have the program for the development of the clientele to the point where they are self sufficient. The staff recognize that they do not serve the clients as they should because of many pressures to do administrative type chores, but few recognize that they do not have the program resources even if they did have the time. When new programs come along, they are not integrated into the system because of the incompatibility of maintenance and development philosophies.

Social inventions commonly encounter a "rejection" reaction from a social institution, and hence, experience slow acceptance at best, impairment generally, and total rejection not uncommonly. This rejection reaction would appear to be a natural physiological function in social institutions as in the human body.

In the case of social inventions, the transplant to an old organization may not be nearly as desirable as the creation of a new non-organization that might incorporate other social inventions. Most of our social institutions are very old and new systems may be required in addition to individual social inventions. Therefore, the experimentation within relative organization-free social systems which utilize the current communications delivery system might be the most suitable for both exploiting the full potential of the innovation and serving the people the way the people wish to be served.

IV. SOCIAL INVENTIONS FOR MENTAL HEALTH PROGRESS

When we look at the history of the treatment of the mentally ill we see a number of important inventions such as shock treatment, prefrontal labotomies, and tranquilizers. If we go back to 1907 we see another type of invention: a social invention intended to end man's inhumanity to man in asylums and insane hospitals. I refer, of course, to the founding of the mental health association by Clifford Beers, who had at one time been mentally ill and when he recovered, he determined to do something to alleviate the cruelty that was measured out to many patients in the mental hospitals of the time. Over the almost 70 years of its existence, the mental health association has prompted many improvements in the treatment of the mentally ill. But its job is far from done, as is commonly known. While generally speaking, more humane treatments certainly prevail over the conditions of the turn of the century, we are still greatly in need for more human methods of treatment. The chemical, electrical and surgical treatments of today benefit a great many people, but too often subdue the symptoms and to some extent the person by drugs.

We need far more human methods of treatment than drugs and boarding houses. What we need are social treatments and a number have been invented over the years, including: hypnosis in 1765, psychoanalysis in 1896, psychodrama in 1921, client centered counseling in 1940, and in more recent years reality therapy, encounter groups, life skills training and behaviour modification. Each of these has represented an important contribution to the treatment of emotional illness, but at the same time, we are in need of several more such inventions to provide more effective treatment and social rehabilitation.

If we are really to expect people to fully recover and become human and social equals, we need social forms of treatment that will remove the vestiges of the disease and provide the spirit and skills to live fully in society. This being our challenge, we realize that there are many people in the world who have never been in a mental hospital or psychiatric center who very definitely require social therapy. I refer to the many lonely, pessimistic, anxious and sad people who inhabit this world. Popping a tranquilizer is no solution; what they need is social, not chemical treatment.

The original invention of a mental health association was the Connecticut Committee for Mental Hygiene, founded by Clifford Beers in 1907. The association subsequently invented what it first called White Cross Clubs, and which we now call Community Service Centres.

The procedures carried out by the Community Service Centres include industrial contracting, occupational therapy and social activities, but nothing new has been invented by the Community Service Centres for the rehabilitation of mental patients. The Centres have been able to use standard approaches with a reasonable measure of satisfaction. This could also be said of nearly all the activities of the mental health association.

Adapted from a talk to the Annual Meeting of Mental Health/Saskatchewan, Regina, May 1, 1973.

The fact that the Association has not invented new methods does not infer that it has not been progressive, for indeed, we have some examples in Prince Albert and Edmonton wherein the Association is teaching life skills to former patients. This was instituted within 3 or 4 years of the first invention of a life skills course.

Earlier, it was mentioned that a social invention might take the form of a law, procedure or organization. Naturally enough one can not say that a voluntary organization can create laws - although it can advocate new laws. Similarly, perhaps, the association has not invented new psychotherapeutic procedures such as reality therapy or behaviour modification. Typically, this kind of invention is made by an individual or a professional team working in a clinic or research centre. The Association does and should fund such experimental research. The type of social invention that the mental health association has made is that of inventing an organization. First, it invented itself. CMHA should not pride itself entirely for the invention of the organization, and again, credit should be given to Clifford Beers for fathering the invention of this organization. In turn, however, the association has invented the Community Service Centre, and what is currently being invented now in Edmonton and in Prince Albert is a fully integrated active treatment social rehabilitation centre.

At this point, previously established facts must be reviewed; mental hospitals, psychiatric treatment centres in general hospitals, and boarding houses all to a very large extent represent a custodial approach to the treatment of the mentally ill. I would venture to say that the average psychiatric patient today receives only a few minutes of psychotherapy or social therapy a day. The remainder of the day is spent in sleeping, sitting, walking around, or watching television. A few patients admittedly do receive occupational therapy which, to the extent that it is craft work simply helps consume time, but to the extent that it is socially interactive in the production of plays, etc., can be classed as socially therapeutic.

Hours and hours of idleness in a hospital or boarding house can be accepted if the passage of time is indeed the active treatment agent. The administration of shock treatment or the injection of a tranquilizer may be all that some require. The vast majority, however, require a great deal more. They require an active social treatment program that develops their skills of interacting confidently, competently and pleasantly with other people, that develops their skills of managing their own lives responsibly and appropriately, and that develops their acceptance of themselves as normal, healthy, wanted human beings.

What is definitely required is an active treatment social program. I suggest that the component parts of such a program have largely been invented. I would draw your attention to such elements as psychotherapeutic counseling, group counseling, life skills training, psychodrama, human relations training, reality therapy and certain forms of recreation.

The problem for the patient today is that he or she needs a battery of these treatment techniques but in the rare occasion when they are available, they are offered in complete isolation. What is needed is an organization of these treatment forms into some type of social treatment system.

This is the type of program required in the social rehabilitation of psychiatric patients and perhaps many who have never seen the inside of a psychiatric centre.

I would like to suggest that the mental health association invent an organization that would bring together these various forms of social treatment, integrate them into a total treatment program and, thereby, complete the work that medications may have started. The invention of an organization to do such work as this would be of as great a significance as the invention of other great organizations such as the labour union in 1696, the YMCA in 1844, the Red Cross in 1864, 4-H Clubs in 1904, Boy Scouts in 1908, AA in 1934, and the Child Guidance Clinic in 1896, and the mental health association itself.

It is usual that new methods of treatment are invented by highly trained professionals who have worked long and hard on their inventions. On the other hand, it is the ordinary citizen who shows his genius in inventing organizations: so it was with Clifford Beers when he invented the mental health association, with Paul Harris when he invented the service club, with Bayden-Powell when he invented the Boy Scouts and so on.

Of course, one person cannot invent an organization because it takes several people to form one. However, organizations are usually formed because of the inspiration and leadership of one person. It is a group of laymen who are capable of creating an organization and developing a program that uses methods taken from many sources to achieve great goals.

What is required today is a new organization perhaps based on the Community Service Centre, that becomes a very effective social rehabilitation service. This organization can integrate components of recreational therapy, occupational therapy, life skills training, counseling, work experience, etc., to become a fully effective total social treatment program. I am not referring to something that is just a sheltered workshop for people who will never be able to cope with life's stresses and strains. I am talking about a social therapy program that will give the people the skills and confidence to succeed very well. If there is any hope for a truly human effective social organization that will provide a total, integrated, human, social rehabilitation program it is with the Canadian Mental Health Association.

Personally, I would like to see each Branch of Mental Health/ Saskatchewan invent a new and better organization for social rehabilitation. A starting point may be the examination of all sorts of existing programs for the rehabilitation of people with various ailments. A study of these should include the activities that are carried on, the amount of time spent in rehabilitation activities, and the time spent on time-killing activities. Time-killing activities include a great deal of the industrial work done in Community Service Centres. Rehabilitative activities should be examined with regard to the presence of specific objectives; behaviours that can be seen and described so it may be possible to know if the member needs more help or not. All social rehabilitation programs should have behavioural objectives. Behavioural objectives are clearly discernible behaviours such as the following:

1. Looks you in the eye when he talks to you.
2. Initiates conversation with other members.
3. Accepts mildly critical feedback.
4. Gives mildly critical feedback to others.
5. Dresses neatly.
6. Loses a debate gracefully.
7. Interviews other members.
8. Shows visitors around the centre and explains the program to them.

Once the behavioural objectives for the social rehabilitation program have been established, a re-examination of the programs available including life skills training, recreation, role playing, creative job search techniques, group and individual counseling should occur. There should be a proper mixture of all these programs. It may be decided that you cannot expect people to become fully socially rehabilitated unless they get a job. Therefore, training in how to get and keep a job, and some type of employment service might be provided.

Once all the required parts of the program have been established, the planning of facilities and financing should be undertaken. Fortunately, grants from organizations such as LIP are available, but more money than they provide will be required. Here, the assistance of a top marketing man to sell the plan to governments, service clubs, foundations, and so on, is very essential.

The next problem is that of program personnel. This presents a real problem for a voluntary organization since top quality personnel must be hired on a modest budget. This can best be done, perhaps, in a combination of ways including:

1. Obtaining part-time help seconded from social service agencies.
2. Getting people trained through occupational training schemes.
3. Hiring good people.
4. Inservice training program.

However personnel are acquired, there should be a deliberate program of inservice training in order to build skills and enthusiasm.

Good people can interfere with each other, however, and clients can distort the program intentions if there is not a good program schedule. It must be made clear to all personnel who does what and when. This is important in social rehabilitation for a disjointed program can mean that some people do not really get involved in the program. This requires good organization.

Another problem might be that of getting people to come to the program. Referrals from the psychiatric centre, social workers or professional people cannot be counted on since many of them will be found to be ambivalent to the program. People will have to be recruited. Again, the help of the marketing man would be an asset since the program might have to be sold like toothpaste. To do this, paid advertisements, radio and TV appearances, or newspaper stories may be needed. Demonstrations may be conducted at the psychiatric centre for social workers, Manpower, Unemployment Insurance and welfare counselors or others who are in a position to refer people.

Realizing that most, if not all, of the clients will come on a tentative, perhaps leary basis, a special welcome procedure must be extended that makes them feel glad they came and encourages them to come back tomorrow.

This is obviously a big organizing job and this is why the professionals have not done it. Only laymen are good organizers. Therefore, let it be the duty of the CMHA to select and integrate the appropriate programs and get an effective organization together to conduct a social rehabilitation program.

If this can be accomplished, it will rank with the invention of the Mental Health Association by Beers in 1907. It seems a shame to have to go back 66 years to the most recent invention of a mental health organization. Indeed, now is the time for another.

V. SOCIAL INVENTIONS FOR EDUCATIONAL OUTREACH PROGRAMS

It has taken some 4,500 years since the invention of the school in Sumer to develop the educational system to its present state. Over this time educational progress has taken three forms: new laws, new organizations, and new methods. In this context I refer to the creation of a new law, organization or method as a social invention, for I believe it is important that we recognize that progress in education comes through social inventions just as progress in communications comes through electronic inventions and progress in medicine comes through chemical inventions.

This comparison can be taken further to relate the resources devoted to educational, medical and communications research. One does not need figures to illustrate the imbalance that exists between the money spent on human science versus natural science research. While I do realize that much educational research is being done in Canada by a variety of people and organizations, I question the impact and value that such work, done largely by individuals working in isolation from other researchers and often on a part time basis, can have in the development of new improved methods or organizations for education.

If we look at the organizations that have been invented in Canada alone to provide educational outreach, we discover that they have virtually all been inspired and created outside the educational system. I would draw your attention to the following organizations that were invented solely to provide educational outreach:

Women's Institute
Antigonish Cooperative Movement
Frontier College
Farm Radio Forum
National Film Board

I should like to emphasize that I am referring to Canadian organizational inventions and not including the large number of foreign inventions that are widely used in Canada, such as represented by the little red school house, community colleges, agricultural extension, university extension, correspondence schools, YMCA, and many more. Indeed, the array of organizations for educational outreach is quite amazing.

Contemplations about the essential differences between outreach programs conducted in Canada by the above organizations leads one to analyze them according to the domains of educational objectives. These objectives were set forth by Bloom, Krathwohl and their associates and describe three domains: the cognitive, affective and psychomotor.

A background paper prepared for the CAP Conference, Keewatin Community College, The Pas, Manitoba, June, 1973.

The cognitive domain deals essentially with knowledge and can perhaps be typified by mathematics, communications, science, social studies and the other subjects of the curriculum.

The affective domain deals with attitudes and has not been reflected in the curricular design until very recently in experimentation with affective curricula, humanizing learning programs and life skills education. This domain, however, has historically been of focal dedication for the other organizations such as the Antigonish Movement, and the National Film Board, which have been mainly concerned with motivation and social mobilization. They attempted - and I think succeeded - in integrating the cognitive and affective domains. In fact, John Grierson, the first Commissioner of the National Film Board, often lectured on the virtue of propaganda.

The psychomotor domain covers motor behaviours such as used in manual tasks. It includes verbal behaviour such as expected of a persuasive salesman, and it includes the behaviours performed in union negotiations. The psychomotor domain is one that is largely ignored as far as education is concerned except in certain manual or other vocational training programs. Students may be reprimanded about their social behaviour, for instance, but they are not taught the skills to behave properly or appropriately. This kind of training is found in human relations training in industry, public speaking courses, salesmanship courses, management courses, leadership and life skills courses. These courses are (like the affective courses) outreach or inhouse programs of agencies other than the educational institutions.

The question then arises as to whether other organizations have had to take on these affective and psychomotor domains of learning because the educational system did not reach out beyond the cognitive domain. I am, therefore, suggesting that outreach is not purely physical or geographical, but also philosophical or educational. There is a need, I would suggest, to extend the boundaries of the curriculum to include not just new knowledge disciplines but also to include new types of objectives and especially those in the affective and behavioural domains. One example that comes to mind because I have been involved in its development is that of life skills education.

Life Skills - an inhouse outreach program

Life Skills are defined as the human relation and problem solving behaviours used appropriately and responsibly in the management of one's life. Life skills education may be largely cognitive; affective and psychomotor, or it may be cognitive, affective and psychomotor.

More and more educators recognize the need of many students for training in "life skills" as well as in mathematics and English. The teachers recognize that many of their students do not handle their lives as well as they might, and in fact, suffer personal, financial, legal, family, social, employment and other problems that they themselves could resolve if they had better life skills. Because some people do not, for instance, handle their money responsibly, certain teachers are inclined to add a lesson in the mathematics program on budgeting. This is purely a cognitive approach to the problem.

It is true that many people do not know how to calculate budgets or compute the best buy of a given product. But the problem is deeper than ignorance. The nature of the student's problem often rests in his priorities (e.g., immediate gratification or impulsiveness), need for status (and hence buying top of the line, such as a $1,000.00 colour television set), excessive indulgence, domination by others, inability to say no, fear of using community services, or in other causes.

The second alternative is to have the traditional disciplines and life skills education co-exist with the usual subjects taught in the customary manner, and life skills taught in an expressive and behavioural format.

Life Skills education is an activity program. The adult student actively seeks knowledge through lectures, panels, symposiums, reading, audio-visual aids, discussions, visits and tours. Insight and understanding is gained through feedback techniques, problem-solving groups, experimentation, task assignments, situational tests and simulated activities. Skills are gained through practical experience, role-playing, drills and demonstrations. Interests are developed through plant tours, audio-visual aids, reading, creativity exercises, role-playing and group discussions. Students gain self-confidence through an observable increase in skill competency based on performance and feedback on performance obtained from other students and analysis of video-tape feedback.

The third alternative integrates the cognitive, affective and psychomotor approaches to teaching life skills. In this way the main purpose of life skills training is to provide the knowledge, attitudes and concrete skills needed to handle life responsibilities more effectively. The initial focus, therefore, is upon the areas of life responsibility (self, family, community, leisure, job), and it is these that define the curriculum subject areas, rather than the more traditional subject groupings such as literature, economics or mathematics. The effective handling of any of the areas of life responsibility requires that the students learn subject matter from a variety of disciplines. For example, a student will learn that planning a home entails knowledge of mathematics, reading, economics, geography, aesthetics, and many more subjects. By focusing on the situation in which the student must apply integrated knowledge, the teacher forcefully demonstrates the pragmatic value of knowledge in each of these subject areas and can, therefore, more effectively motivate the student to want to acquire additional knowledge. Mastery of formal subject matter in each of the traditional subject areas can proceed very effectively in this manner.

Such a life skills curriculum requires each student to confront each of the areas of life responsibility by helping him to derive and apply knowledge from each of the following subjects: communications, mathematics, psychology, biology, health, careers, marriage and family, economics, geography, politics, law, anthropology, sociology and the arts. This knowledge would be gained and applied through a variety of educational activities including discussing the subject, analyzing what has been said, reading graded materials about topics, viewing films, conducting surveys, role playing, field trips, interviews, writing reports, presenting reports, or making visual displays.

In this way the curriculum is an activity program. Instead of being a passive recipient of knowledge, the student is actively engaged in deriving, collecting, discovering and utilizing information to solve problems. In mastering a typical curriculum unit, he discusses the subject, analyzes what has been said by others, reads graded materials, views films and visual presentations, broadens his experience with the subject, gains information by conducting surveys, engages in role-playing, takes field trips and interviews people. He writes reports and makes films and presents these to the class, staff members and others. He researches, compares, plans, computes, observes, thinks, dramatizes feelings, visits, leads and follows - in short, engages in activities that fit into the broadest range of educational techniques. In this way a true integration of knowledge, feelings and skills can be acquired to fit the person for competently managing his own life and career.

Such a comprehensive approach to education would most certainly be a valid inhouse outreach program.

Social movements and educational outreach

An interesting phenomenon of virtually all social movements is that they recognize the need for an educational component in their programs and in their organizations. For instance, the labor movement set up a variety of worker education associations, the agrarian movement resulted in agricultural extension, and the native organizations today are establishing their own training institutions such as the Indian Cultural College in Saskatoon, Oo-za-we-kwun at Rivers, Manitoba, Alberta Indian Education Centre, Edmonton, and Pe-Ta-Pun in Lac La Biche.

An outreach program that does take into cognizance what is happening in society must do more than deliver its traditional offerings in remote locales. It must present courses that are appropriate to the continuing development of society in the area. In these parts of Canada where we are seeing the social mobilization of Native peoples, and perhaps other disadvantaged groups, it is important to understand and develop the relationship between education and a social movement.

Blumer said that social movements stem from "gradual and pervasive changes in the values of people - changes which can be called cultural drifts. Such cultural drifts stand for a general shifting in the ideas of people, particularly along the line of the conceptions which people have of themselves, and of their rights and privileges. Over a period of time many people may develop a new view of what they believe they are entitled to - a view largely made up of desires and hopes. It signifies the emergence of a new set of values, which influence people in the ways in which they look upon their own lives ... people have come to form new conceptions of themselves which do not conform to the actual positions which they occupy in their lives."[1]

The stages of development of a social movement were described by Blumer as:

1. People are restless, uneasy, they are susceptible to appeals and suggestions that tape their discontent and hence the agitator is likely to play an important role.

2. Popular excitement stage is characterized by more milling but not so random or aimless. More definite notions emerge as to the cause of their condition and as to what should be done in the way of a social change. There is a sharpening of objectives. The leader is more likely to be a prophet or a reformer.

3. Formalization stage, the movement becomes more clearly organized with rules, policies, tactics and discipline.

4. Institutional stage, the movement has crystallized into a fixed organization with a definite personnel and structure to carry into execution the purposes of the movement. The leader is likely to be an administrator.

It is the common experience of social movements that social institutions do not facilitate their progress but on the contrary attempt to manage and control their members through the traditional services and sanctions. This is apparent when differences in social class types and needs are not reflected in public policy and programs which have been formed for the presumed welfare of the lower classes. Any social reform directed at the shortcomings of people, rather than of society, is handicapped by the humiliating imputations of its policy.

There is an element of doubt, for instance, whether education and training alone will significantly reduce poverty or other afflictions of the disadvantaged. It is true that the present middle classes have generally achieved their status because of education and training, but also because their value system was identical to that of the larger society. Education agencies serve as perpetuators of the present culture, and therefore, have not facilitated the development of people or groups engaged in a social movement except to help them adapt to society and adopt its ways.

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[1] Blumer, Herbert, Social Movements, in Barry McLoughlin Studies in Social Movements, New York, Free Press, 1969.

Adult education must realize that to be effective in some areas it must involve itself actively with groups seeking change in the fabric and nature of society. In this way adult education would assist groups to define and plan for action, to mobilize resources, and to facilitate coordination among various groups. Adult education ignored the signals of the past few years and did not prepare for the present situation. In particular, it did not try to shape the activist process but now must educate in the ways of changing society. I believe that by being involved with such groups and speeding the process whereby they develop member education programs and community education programs, educators can assist the maturation of the groups and the accommodation of and to society.

In the next decade there will be major developments in the direction of organizing many special interest activist groups, and as they gain an organization, a position, and a voice, they will make their voice heard increasingly, and will call for a greater, if not a predominant, role in determining the form and content of human services. Their power will come not only from the democratic ethos which, under today's conditions, is becoming to be understood increasingly to imply a switch in the weight of power over policy, from social agencies and community power structures to service recipients. I think it would be wise for a community college to provide staff to help such groups prepare the educational component of their programs.

Adult Educators and Community Organizations

If a community college is to serve the educational interests of community groups and foster community development, it must realize that educational decisions are really political in terms of kinds of programs, objectives, budgets, etc., and adult educators should take an active role in the decision making.

Three basic premises may be adopted in this context:

1. adult educators must perceive the educational development of human resources as the central contributing force in the socio-economic development of communities;

2. adult educators must conceive of continuing education as a non-partisan legal-political process as well as an educational process;

3. for program development and evaluation adult educators must use theories and practices that have been designed for the explicit purpose of using education as an effective instrument for socio-economic development in the reorganization of human communities. Most educational theory is based on individual development and not on the utilization of knowledge and, therefore, new theories are required for training adults.

A community college established at the local level could provide a focal point for social development efforts within one or more communities. In this role it is expected to

- significantly and meaningfully involve the special concern groups in developing and carrying out their programs.
- mobilize public and private resources in support of community development.
- co-ordinate efforts throughout the community so as to avoid duplication, improve delivery of services, and relate programs to one another.
- plan and evaluate both long and short range strategies for overcoming problems in the community.
- serve as an advocate on matters of public policy and programs which affect their status, promoting institutional improvement and desirable changes in social policies and programs.
- encourage administrative reform and protect individuals or groups against arbitrary action.

I would like to suggest, therefore, that in looking at outreach we are not looking solely at organizational outreach, but in fact, instrucmental change in the curriculum to be offered and in the role of the educator.

Reorganization versus New Methods

This point must be stressed because too frequently organizational change is mistaken for substantive change. They are two very different things and changing the organization of the delivery system itself will not change the nature of what is delivered. There seems to be an essential confusion in the thinking of public policy personnel who are continually reorganizing government departments (which usually results in a minimum of six months delay in effecting the changes they want) and fail to see that the fault is not with the organization but with the methods that it uses. We seldom hear talk about the reorganization of a general hospital because of the number of people who get sick and die. What we hear is let's give more resources to invent a cure. There is a clear separation between the instrumental agents (drugs, surgery, etc.) and the organization (the hospital). This distinction is not always clear in the human services and because we have not made it clear we have found they are being reorganized when they should be given new types of methods to improve education.

I propose, therefore, that in order to effect a good outreach program we do need to ask two questions:

1. What program do we need?
2. What type of organization do we need?

I realize there are many other questions to be asked including location, recruitment of students, selection and training of instructors, financing, to mention a few, but I would like to limit my remarks to program and organization.

The course offering in an outreach program should encompass the following methodologies:

1. Individualized. The purpose of the individualized process is to plan, provide, and conduct a battery of learning situations tailored to a student's characteristics as a learner. The process adapts instruction to the individual student and a wide variety of learning materials may be used which allows the instructor to prescribe according to the personal level and needs of each student. Students can then work at their own speed, exactly where their particular need exists.

2. Prescriptive. The prescriptive process is an integrated scheme of placement and diagnosis with prescription according to need and evaluation to see if the student has achieved his objectives. Combined with individualized instruction or a modular curriculum, it permits a student to start at his present level of knowledge and proceed to learn what he needs to know.

3. Generic. This pertains particularly to occupational training most of which now is job specific and an institution can offer very limited job training because of the costs of equipment, the great variety of jobs and the relatively few students interested in any one job. The generic approach identifies clusters of core skills in three occupational areas - dealing with data, people and things - and provides training by prescription for a given occupation. The hands on experience may be done in the training centre or through work experience.

4. Three Dimensional (Cognitive, Affective and Psychomotor). Briefly this would emphasize a competency based curriculum rather than just a knowledge approach.

5. Learning Resources Centres. Consistent with the generic skills, the variety of methods by which people learn and individualization, the training centre should be designed around a learning resources centre.

6. Socially Dynamic. Outreach education should be involved in community development, social movements and social action by integrating an educational influence to the legalistic or activist social mobilization movements.

The above assumes that instruction will take place largely in the classroom type situation. If outreach education is to take place through a communications satellite such as Anik, then we might find that other criteria are more important. Here I refer to programs that might be modelled after Sesame Street, the Electric Company, etc. I shall not, however, deal with these or computer assisted instruction on the assumption that they are not within the normal scope of outreach projects in such remote areas as northern Canada.

Finally, if education and training are to address the needs of groups engaged in some form of social mobilization, a dynamic public administration curriculum may be required so that the new organizations may learn to negotiate effectively with government agencies, and organize their own social development.

The single invention, the system and the organization

Normally, it takes 35 years for a new social invention to be adopted in half the appropriate institutions. One reason for this is that a new method can not be introduced into an institution without affecting other procedures and perhaps even the organization itself.

Programmed instruction, for instance, involves a considerable change in the practices of the students, teacher, principal and school inspector. The adjustment may not be difficult for the student because the method gives him a ready way to measure his own learning. For the teacher, on the other hand, there is a whole new style to learn for now he is a consultant or adviser to the students. No longer is there a role for him to express his knowledge, to prepare his lessons, to teach his class, to prepare examination papers and to grade students. The principal no longer has his methods of assessing the teacher such as attentiveness of the students to the teacher, quality of lectures delivered by the teacher, or knowledge gains by the students attributable to the teacher. The school inspector is similarly afflicted.

This is not to suggest that the teachers are redundant for they are not; it is their roles that must change. So must the roles of the students, principals and inspectors. The power to change may not be in their hands alone. There may need to be new methods invented for the students, teachers, principals and inspectors, and hence, one major invention such as programmed instruction may require an entire constellation of inventions. It is for this reason that the inventors must not be content to test the value of their creation in the laboratory but they must also develop the ancillary methods that are used in the system by the institution. No single social procedure stands alone for each is part of an interrelated system and it is important that the appropriate system be invented for a radically new invention. Thus, if we are to serve the people of the north, we may have to invent new education and training institutions with new roles and programs.

VI. SOCIAL CLASS AND SOCIAL INVENTIONS

Social reform is a legislative act which enables more people to utilize certain social inventions such as welfare or education. It usually involves extending to a lower class certain rights or privileges which are generally enjoyed by a higher social class. It does not simply mean that the service is changed to meet the needs of the new clientle. In fact, the staffing and control of the service usually remains in the hands of the senior social class.

Canada lacks an integrated, comprehensive social policy. To a large extent, our pre-occupation with social policy is in fact a concern for ailments (crime, poverty, etc.) rather than a policy of developing social potential. Social "maintenance" programs such as welfare and criminal corrections are designed for the lower classes whereas social development programs such as education are designed for the middle and upper classes. This distinction raises a question of the differential class utilization of various social inventions. This chapter will, therefore, examine certain characteristics of social class, the means by which a lower social class rises in the social ladder, and finally, the characteristics of the social inventions used by different social classes.

The social class system is conceived of as a continuum of classes rather than as several rigidly demarcated classes. This is based on the fact that there are no precise definitions of the various social classes[1] and there is a relatively high degree of mobility between classes[2]. One component of virtually every definition of social class is income and wealth, and of course, the rich and the poor are found at opposite ends of the social class continuum. Some of the other factors that are used in defining social class include education, occupation and life style. The class system reflects income and wealth principally at the extremes of the social ladder and is based largely on economic criteria and therefore does tend to polarize rich from poor.

A factor that has been very important in promoting social mobility has been industrialization. The process of industrialization requires an open class system that permits and encourages people with ability to gain education and skills no matter what their class origins might be. Industrialization places great demands on society to produce well educated and trained workers (for instance the number of unskilled jobs in Canada has steadily and rapidly decreased as industrialization has progressed). Thus industrialization has prompted an egalitarian ideology which holds that individuals should be able to move through the hierarchy of classes according to their inclinations and abilities. Thus industrialization and egalitarian ideology come into conflict with the structure of classes. With industrial development the demands of the occupational system become so great that nothing short of a transformation of the educational system is sufficient to meet these demands which are reinforced by the demands of social equality[3].

S.M. Miller[4], however, suggested that occupational differences between drop-outs and graduates may be due less to their level of education than to their social class background. Not everyone, however, has even the opportunity to take advantage of the possibility of upward mobility. The barriers to mobility and the nature of poverty are such that many people in the low class are locked in and unable to achieve upward mobility. This has been demonstrated by Oscar Ornati[5], when he found distinct correlates of poverty to include aged head of household, female head of household, colored, rural farm family and low education. These are problems that are not easily overcome[6]. Many writers have defined social class differently because of the apparent lack of agreement on the variables to be included. Riessman[7] attempted to distil the major themes of low income culture as identified by several investigators and he listed the following characteristics,

1. Security vs Status
2. Pragmatism and anti-intellectualism
3. Powerlessness, the unpredictable world, and fate
4. Alienation, anger, and the underdog
5. Cooperation, gregariousness, equalitarianism, and humor
6. Authority and informality (not in contradiction)
7. Person centered outlook, particularism
8. Physicalism, masculinity and health
9. Traditionalism and prejudice
10. Excitement, action, luck and the consumer orientation
11. Non-joining
12. Special significance of the extended family. Stable, female based household.

Hodges'[8] study of social classes in the San Francisco area indicated that the lower-lower class have few marketable skills with experience only sporadic and marginal employment. Typically they have eighth grade education, were married and became parents when upper middle class children had five more years of schooling ahead of them. They have poor housing, many debts, are below average in everything, and are cynical, despairing, pessimistic, hostile, yet maintain close ties in the family. They belong to few formal organizations and withdraw from the larger social arena. This cultural deficiency is a handicap to gaining the social characteristics required for social and economic success. "Thus educational accomplishment is not itself sufficient to produce changes in social status.

Stable character, hard work, thrift and the acquisition of a marketable skill are essential to upward mobility."

In 1963, Haggstrom[9] saw two alternative ways to understand the characteristics of the poor: as resulting from poverty, or as the psychology of the powerlessness of the poor. In arguing that the problem is one of powerlessness, Haggstrom said, "joint initiative by the poor on their own behalf should precede and accompany responses from the remainder of society. In practice this initiative is likely to be most effectively exercised by powerful conflict organizations based in neighborhoods of poverty.

"The situation of poverty is the situation of enforced dependency, giving the poor very little scope for action . . . Middle class socialization and middle class positions customarily both provide bases for effective action; lower class socialization and lower class social positions usually both fail to make it possible for the poor to act." Haggstrom called for social action by the poor for the poor to improve their circumstances and give them normal feelings of power.

The extent to which the poor are, and perceive themselves as, powerless does suggest that the philosophy and practice of democracy does not extend to the lower classes. This has been clearly demonstrated in voting patterns where the percentage of votes is less in poor than middle class districts. When a group or class recognize their powerlessness but also perceive a measure of hope they are more likely to organize to achieve what they consider to be their justifiable rights. The object of their resentment, however, is not necessarily the opposite end of the social class ladder. Indeed, it would appear that there is more hostility between lower and middle classes than between lower and upper[6]. This has been underlined by findings that the rioters in the U.S. urban ghettoes were largely employed workers, and the objects of their violence were usually in their own area and that of middle class people and not the institutions or individuals of the upper class.

The erruptions of violence may be seen in perspective by reviewing Blumer's stages of social movements. Blumer[10] said that social movements stem from "gradual and pervasive changes in the values of people - changes which can be called cultural drifts. Such cultural drifts stand for a general shifting in the ideas of people, particularly along the line of the conceptions which people have of themselves, and of their rights and privileges. Over a period of time many people may develop a new view of what they believe they are entitled to - a view largely made up of desires and hopes. It signifies the emergence of a new set of values, which influence people in the ways in which they look upon their own lives . . . people have come to form new conceptions of themselves which do not conform to the actual positions which they occupy in their lives.

"A specific social movement is one which has a well-defined objective or goal which it seeks to reach. In this effort it develops an organization and structure, making it essentially a society. It develops a recognized and accepted leadership and a definite membership characterized by a "we-consciousness". It forms a body of traditions, a guiding set of values, a philosophy, sets of rules, and a general body of expectations. Its members form allegiances and loyalties. Within it there develops a division of labor, particularly in the form of a social structure in which individuals occupy status positions. Thus, individuals develop personalities and conceptions of themselves, representing the individual counterpart of a social structure."

The stages of development described by Blumer are:

1. People are restless, uneasy, they are susceptible to appeals and suggestions that tap their discontent and hence the agitator is likely to play an important role.

2. Popular excitement stage is characterized by more milling but not so random or aimless. More definite notions emerge as to the cause of their condition and as to what should be done in the way of a social change. There is a sharpening of objectives. The leader is more likely to be a prophet or a reformer.

3. Formalization stage, the movement becomes more clearly organized with rules, policies, tactics and discipline.

4. Institutional stage, the movement has crystallized into a fixed organization with a definite personnel and structure to carry into execution the purposes of the movement. The leader is likely to be an administrator.

"The issue seems to be that social institutions do not facilitate the lower classes but exist to manage and control them. This is apparent when differences in class types and needs are not reflected in public policy which has been formed for the presumed welfare of the lower classes. Any social reform directed at the shortcomings of people, rather than of society, is handicapped by the humiliating imputations of its policy.

"Social welfare programs cannot succeed in integrating slum communities with the wider society. Faced with many handicaps, the slum dwellers retreat into a subculture which, though it increases these handicaps, protects them from humiliation. Hence, they are not receptive to the values which welfare workers and social institutions represent as agents of society[10]."

It would appear, therefore, that where there is a poverty class that is powerless the society is not equalitarian. The point that Haggstrom[9] makes is that additional income for the poor would not make the essential difference. After reviewing four sub groups within the American lower classes, S.M. Miller[6] concluded that three basic policies are required to assist the poor, (1) direct economic aid, (2) direct services, and (3) indirect change (social, psychological, political) of the neighborhood where they live. The social movements invariably achieve 3, above, and usually aim to change 1 and 2 as well. It is this powerlessness business. Therefore, the issue is not strictly rich vs poor.

Democratic society is essentially permissive in its philosophy and practice. Permissive in the sense that the people have the right to participate. It is the middle and upper class institutions that take advantage of these programs. For instance, urban and suburban schools of higher socio-economic status have done more to change the content of science and mathematics courses, have made greater use of institutes for teachers, have done more about augmenting guidance programs, have made greater use of funds for remodelling and equipping facilities for mathematics and foreign language instruction, and have made greater use of advanced placement and other programs than have rural schools and schools of lower socio-economic status[12].

The organizations set up for the presumed welfare of the poor are run by middle class people and often operate in veiled punitive form. Thus the poor are alienated. Thus the critical problem seems to be that egalitarian ideology has not extended to democratic institutions because the methods of democracy are alien to the poor. Their life style is not one of electing spokesmen, of extended planning and debate or of a complex verbal interaction. As Riessman noted their life style is much more pragmatic, action oriented, anti-intellectual, with a sense of alienation and powerlessness, and they are not members of formal organizations (except religious). Therefore, the representative democratic system is not one that they can use. The social movements of the poor and the contest strategies[13] are closely allied. It is only recently that the poor have engaged in the contest strategies to obtain firstly, certain rights and secondly, control over certain agencies. In the context of today the definition of democracy is being refined to accommodate such moves. Thus we have the terms "representative democracy" and "participative democracy" come to the fore. The stages of a social movement described by Blumer suggest that its strategies are successively contest, campaign and collaborative.[13] The fact that democracy can encompass and adjust to such movements by the poor does indicate that the egalitarian ideal can be progressively achieved.

The ideals of education have been to maintain low class barriers and to increase upward mobility. While a good education does help a person attain these ideals the educational system has generally reflected the social barriers to social mobility in its curriculum, social system, etc. Social movements lead by the poor include among their objectives the gaining of control of the schools to make them serve the lower classes. This could defeat the educational ideals because the schools would be oriented to one class more than they are now. Rather than developing cultural unity in a pluralistic society the schools would actually foster forms of separatism. Educators have been enormously lethargic in putting their ideals into practice and they may lose even the opportunity if one social class takes over explicit control.

The educators who have been most prepared to change are the adult educators who have deliberately seen all adults as their legitimate "market" and not dictated curricula, but rather developed curricula to meet the declared interests of adults. Many adult educators, aware of the need for people to become more equal in their own land, have and do advocate that they must assume an activist role in social reform.

The school that most needs to redesign its curriculum to meet the democratic ideas is the high school. It means making studies relevant, preparing people to live in the current and next centuries. It means studying current cultures. It probably requires a different design for courses so children are taught to define their situation in life and how to cope with it. The school will become a strategic and tactical base from which children will operate to learn.

One major difference between middle and lower classes involves their contrary approaches to organization. The lower classes belong to few formal organizations whereas in the middle class, organizations represent a way of life, a mobility ladder and employment. There is a major difference in the various social classes regarding the use of the whole constellation of social inventions involved with organizations. The prevalence and importance of organizations in life may be inferred from a study of organizations in one small town with a population of 2700.[14] This specific town had 136 organizations involving 660 members; 110 of these members were office holders representing the middle and upper classes.

The churches are highly organized with many committees, "circles", and other groups. Books have been denoted like The Organization Man whose skills in achieving his objectives through organization is a necessary prerequisite to success. It is through educational, welfare, correctional and other such organizations that the middle class exert their authority and superiority over the lower class. This differential use of organization is a critical fact. One way of resolving it is through the development of organization-free services such as those described in Chapter 3 of this book.

Another difference between the classes involves a sense of power but since this is exercised through organizations, it is closely related to the utilization of organizations. The lower class is considered to be more cooperative, gregarious, egalitarian, informal and person-centered than the middle class. It is almost as though the organizational values had invaded the lives of the middle class to the point where they bureaucratized their informal relations. Recently, several people in the ranks of the middle class have recognized this and the younger generation, particularly, have reacted strongly against it. At the same time, many middle class people have set up organizations and groups to assist them in becoming more intimate with other people. These are evident in communes, group marriages, nude therapy, and encounter sessions which are rapidly developing. A number of schools are now introducing "humanized learning programs" for their predominantly middle class students.

Humanized learning programs also go under the name of affective education or life skills education. The most extensive program is the Life Skills program developed by Saskatchewan NewStart/the Training Research and Development Station in Prince Albert.

Life Skills are defined as human relations and problem solving behaviours applied appropriately and responsibly to the management of one's life. The program was originally developed for adults and is being used in a variety of Manpower, welfare, correctional, work activity and mental health programs in Canada and the United States.

A number of educators have been adapting the program for use in school guidance programs. The Northern Areas School Board in Saskatchewan has two full-time curriculum developers preparing an edition of the program for introduction into the schools in the Fall of 1974.

Some proponents of Life Skills education argue, however, that it should not just be one course but in fact the total school curricula. They suggest that mathematics, science, language arts, etc., are the "wrong" subjects for school. They feel that these and the other traditional subjects are good topics for preparing students to be professional mathematicians, physicists, writers, etc., but that is their only virtue.

The imposition of such subjects represents the tyranny of the new aristocracy in which the universities serve as the power base of the new elite. The tyranny that these people have imposed upon childhood education may be detected in the universal inferiority complex that almost everyone now has in respect to his education. The tyranny can be seen in the insistence that one needs at least grade ten to enter vocational training. In actual fact, most trades require about grade six mathematics and grade eleven communications - but not the type of communications that is taught in school. The skilled worker needs to know the literature of the memo not the literature of Shakespeare - he also needs oral questioning skills and listening skills, but none of these are taught in school.

In the place of these disciplines the Life Skills school would teach these subjects:

Self Development - Forty percent of the children in high schools do not have confidence in themselves and believe that they will make a mess of their lives even if they do get a good education. There is a need, therefore, for education intended to improve personal competence and self concept of students.

Family - Getting married represents the most important decision that a person makes in his life. For many there is no way to correct a poor decision - and for 75% the particular decision proved a poor one. In addition many youth are at odds with their parents. There is a need therefore to train people in the skills of family living and decision making.

Community - We have many opportunities to exercise our freedoms as well as our responsibilities, but too seldom do we fully use our freedoms or our responsibilities. Schools do not offer opportunities for decision-making or responsibility-taking except for those who get select assignments in extra curricular activities. There is a need to stimulate the school program to provide these skills of personal and social development.

Leisure - There are definite signs that we will have a three day weekend in the near future, but many people cannot manage an evening of leisure, let alone a two day weekend. The extra curricular activities could be much more beneficial to students if they were an integral part of the curriculum.

Job - In spite of what may be said by some, jobs are here to stay, but they will be more diversified, more interesting and more human. Sixty percent of children in high schools do not have an adequate idea of what they will do on graduation, and guidance counselors (as parents know so well) are ill-equipped to help them. The career development curriculum movement does hold some hope of improvement in this area.

These five topics should be the subjects taught in school. Enough mathematics, communications, science, etc., can be embedded in the subjects in a relevant way that students will be well-equipped for life.

The "invention" of future education will not be restricted to changes in the curriculum but will include the proliferation of "alternative" schools. The reason for the change will be that it will soon be possible for a student to obtain a superior education in his home, at the library, or elsewhere (even at school for that matter) thanks to computer assisted instruction.

The computer will give the student a few placement tests to find out what he knows, and how he learns best. It will then prescribe learning packages for him to study which might be text books, audio visual materials or computer assisted instruction, depending on his best learning style. After he has studied the material the computer will test him, analyze his answers, and prescribe more learning materials. The computer will also give him a certificate on the completion of certain milestones or grades. Some students may qualify for the certificate on their first meeting with the computer. This will be fine, as it does not really matter how or where the person learned.

The life skills curriculum can be designed and implemented for all social classes and the computer assisted programs can be available for those students (a minority) who wish to learn traditional subjects for entry into "higher" educational institutions.

Man's eternal struggle to master himself and his neighbor has resulted in inventions such as psychotherapy and prison, democracy and dictatorship, marriage and morality, religion and belief, writing and rights, unions and universities, strikes and statistics, judge and jury, ombudsman and official. Each of these, and thousands more, are the social inventions that man has made over the millenia, and which have produced the society we have today in which certain of the social inventions are used differently, by different classes, in various societies.

A number of specific innovations have been taking place in an effort to improve the services that social agencies offer. However, the most significant changes will not take place with the adoption of an occasional new technique; for regardless of the merits that it might have, it will usually find its special merits muted by the total effect that the old system has on a new intruder. Therefore, the really significant changes will take place when new systems incorporating many of the new methods are installed.

Frequently, the adoption of a single innovation is simply a way of sugar coating or modernizing the exterior of an old and inadequate program. Clark and Jaffe[15] have described this clearly in contrasting two types of crisis centres. One type represents the traditional agency that recognizes that it is not "reaching youth" and employs some "hip" youth as outreach workers, but does not alter its philosophy, organization structure or services. The alternative type of organization, on the other hand, is run entirely by people who can barely be distinguished from the clients, who believe that their role is to collaborate with the clients rather than counsel them. Such an organization lacks hierarchical structure or has a transitory one that changes in response to client needs.

This alternative organization type compares with professional-dominated organizations and with participant directed organizations. Examples of the former include schools and welfare offices, while alcoholics anonymous and weight watchers would be more traditional examples of the latter.

A major change the must overtake our human service agencies in the future to ensure that they meet the true needs of the clients of all social classes will be the adoption of a service development and delivery system that will:

1. exemplify the theory that the client is king and not subject.

2. deal with clients in a developmental-collaborative manner rather than a jurisdictional-bureaucratic way.

3. incorporate client advocates within the organization.

4. include a majority of client representatives on governing boards.

5. meet the needs of clients without imposing jurisdictional barriers.

The extent of such a change may be imagined from a review of the present situation that characterizes most social institutions. A fundamental problem lies in the fact that most organizations are designed on an authoritarian structure appropriate to the commanding of armies and the production of manufactured goods. Associated with this is the impersonal bureaucratic system that involves rigid specifications of the qualifications that people must meet to obtain services, the strictly enforced jurisdiction of what type of service each agency must provide, the vagueness or even secretiveness of the agency about the full range of benefits available to its clients, the opinion of the staff that the clients are inferior to them, the opinion of the staff that a client needs "counseling" when in fact his problem(s) may be created by the institution which in reality needs reform, the staff "reward" system that gives merit points for quantity of people processed rather than quality of help provided; defensiveness of the executives of social institutions to criticism from inside or outside the organization, "beggar" status of many social institutions as represented by membership in United Appeal, poverty of ideas brought about by poverty of funds, reward system that gives merit points to staff for paper work rather than professional work, bureaucratic posture rather than helping style; low importance placed by the institutional executive on professional competence of staff, a lock-step sequence of procedures that the client must endure.

The future human development agencies need to have these characteristics:

1. Their services will be fully defined and advertised in outcome benefits that the clients will be able to understand and relate to themselves. Literature describing the programs (which is now written at college level of difficulty) will be written at a level, perhaps grade six, that at least half of the clients can comprehend.

2. "Cafeterian" services that permit the student or client to determine sub-goals or terminal goals, select appropriate starting point and proceed according to his plan. To be specific, a grade nine student could, on entrance or at any time, "test out" of grade nine, ten, eleven or higher, on any subject, and by so demonstrating his knowledge of the subject save the time normally occupied in passing through each subject in each grade. The student would also have a much wider range of graduation options than now because of the possibility of individualized instruction that could be available in all concernible subjects. He could also select the appropriate quantity of the subject to learn in terms of his goals.

3. Multi-jurisdictional services that provide the client with health, legal, learning, counseling services on location in accordance with the needs of the person.

4. Collaborative with the client. The staff will take his side and his viewpoint and will help him get the services that he needs and wants. Additional services may also be offered in case he is not aware of them.

5. Professional services will be mediated. Training, information, counseling and certain other services will be mediated, that is provided by means of self operating video tapes. There will be no waiting for the professional. The client simply selects the learning or information package that he wants and slips it into the video cassette player and gets what he wants. By simply having the player replay parts of the tape the client can have the professional repeat his message until it is clearly understood. This means that the client has access to the most competent professionals no matter where he is. Similarly he may receive training or counseling on demand from a computer.

6. Staff will accept hostility from the client as a natural and justified expression of honest feelings.

An organization incorporating these approaches will require changes in structure, including the following:

1. Reception division. The reception division will be responsible for seeking clients and encouraging them to exploit the services of the organization. It will welcome clients and encourage and assist them to express their feelings about the services that they want and the problems they have encountered. It will then obtain appropriate services from resource divisions and follow up to ensure client satisfaction.

2. Development division. The development division will provide the services requested by the client. The division will also provide knowledge and skill in obtaining and using the services of the community and of applying new and old knowledge and skills in the community. Its emphasis will be on problem solving and opportunity utilization and hence will be developmental.

3. Resource division. The resource divisions will contain professionals and subject matter specialists who will advise staff and clients how to obtain the knowledge and skills they seek. These specialists will collaborate with the client and not simply advise him.

4. Application division. The application division will do follow-through activities with clients. Note that the emphasis is on follow-through and not follow-up. The purpose of follow-up is simply to identify what happened while the purpose of follow-through is to see that the client really did get the services he wanted and that they were useful. He will be prepared to help the client if he had difficulty with any aspects of solving his problems and using his opportunities. Staff may identify weaknesses in various aspects of the agency's services and will feed this back to institute self-correcting activities.

A key to this plan as with all schemes is the staffing of the organization. The reception, development and application divisions will be staffed by coaches who will help the clients. They will not be professionals, but rather, they will be laymen specially trained in the helping skills.

The social inventor faces the same moral dilemma as the scientific inventor who worries about whether his innovation will be used for good or evil. In the case of many social inventors, their own value systems influence the type of invention that they make just as the value system of a social institution influences its adoption and rejection of various social inventions. Consequently, social inventions per se and their use are likely to reflect certain social class distinctions. It is possible that one of the reasons for the perpetuation of age-old, crude methods of resolving inter-class struggles (such as strikes) is because social inventions have not been designed to permit appropriate inter-class communication, negotiation and problem solving.

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VII. THE ORGANIZATION OF SOCIAL INVENTION CENTRES

The experimental invention of a new social procedure is a risky endeavour, because it may provoke unfavorable reactions including some public criticism. For this reason (as well as those cited in Chapter one) governments, universities and other social agencies are reluctant to experiment with new methods of dealing with people, and they are particularly reluctant to experiment with people in the development of entirely new methods.

In the middle of the 1960's, therefore, when the federal government saw the need to develop new methods of training and counseling adults for its Manpower Training Program, there was considerable attention given to the question of who should conduct the action-research required. A prime consideration in these discussions was the ability to make mistakes, acknowledge them, and continue to experiment. Government departments and agencies do not normally have this ability because of their defensive posture required by the fact that their every act may be scrutinized and used in the legislature to cripple the agency itself.

Companies, on the other hand, do not have the same mortal fear of innovation because the forces of competition require that companies continually introduce new goods and services. Frequently, these innovations are not successful in the market place, and it is necessary for the company to discontinue an item or an entire product line and to resume experimenting with new ones. This is normal practice for companies, but not for social institutions, and hence, the corporate posture has an appeal to the social inventor.

The first federal/provincial program for the experimental development of social inventions was in the field of new methods of human resource development. This was the Canada NewStart Program which was established in 1967 by the Department of Manpower and Immigration and the departments of education in Alberta, Saskatchewan, Nova Scotia and Prince Edward Island. Subsequently, in 1968, federal responsibility for the NewStart Program was transferred to the Department of Regional Economic Expansion.

In each province where the program was put into effect it was organized as an incorporated society, jointly owned by the federal and provincial governments to achieve related federal and provincial objectives for their separate jurisdictions. This organizational device had no precedent before the NewStart Program.

The Constitutional Question

There were several considerations taken into account in deciding the structure for the NewStart experimental training projects. The decision in favour of organizing the research program under the provincial companies or societies acts was taken only after careful analysis of other alternatives which could be provided by the Technical and Vocational Training Assistance Act (which was in effect at that time), a new Act of Parliament, and the Companies Act of Canada.

Section 7 of the Technical and Vocational Training Assistance Act read as follows:

> "7. (1) The Minister may undertake and direct research in respect of technical and vocational training, and without restricting the generality of the foregoing, may undertake and direct research in respect of any of the following matters:
>
> a. trade analysis courses content;
>
> b. training aids, examinations and standards;
>
> c. the changing needs of the economy for trained workers;
>
> d. the relationship between technical and vocational training and the needs of the economy; or
>
> e. any studies that, in the opinion of the Minister, would assist in improving technical and vocational training in Canada.
>
> (2) The Minister may, where he deems it appropriate, undertake and direct any research referred to in sub-section (1) in co-operation with any province or all provinces.
>
> (3) The Minister may collect, compile, analyse, abstract and publish information relating to any research undertaken and directed by him pursuant to this section."

It may be questioned why, with this authority at hand, the federal government wished to accomplish the same thing by another means, namely, the incorporation of provincial corporations.

In assessing the suitability of this authority to mount the program it was felt that the NewStart research project required:

1. a high degree of autonomy from direct control by either the federal or provincial governments;
2. freedom from governmental staffing problems (i.e., the provisions

of the Civil Service Act) and procurement problems (i.e., the Department of Supply and Services);

3. freedom from the appearance of a direct federal intervention into an area - the field of education - in which some provinces have indicated sensitivity in the past.

The most important problems were the staffing and procurement problems associated with normal government organization, and the desire to have the co-operation of the provinces in implementing the program under consideration. None of these problems could be overcome by the authority provided in the Technical and Vocational Training Assistance Act, thus some other form of authority was accordingly sought.

Having rejected that authority, an alternative would have been the creation and passage by the Parliament of Canada of a separate Act which would bring into being the research organization in question. The particular advantage of an Act of Parliament would be that the organization could be tailored exactly to the felt needs for the program. The National Research Council is an example of an experimental centre established by the federal government by a specific Act of Parliament, which has co-operative research projects with provincial research councils.

This solution, however, was also rejected on the footing that it was another example of direct federal action in a field related to education, and again it was desired to solicit the co-operation of the provinces in carrying out the scheme.

Another solution to these problems might have been to incorporate a company under the provisions of the Companies Act (Canada) Part I, and take advantage of the provisions of the Government Companies Operations Act. This latter statute, applicable to companies incorporated under Part I of the Companies Act, all of whose shares are held by the Government, provides that employees need not be hired pursuant to the provisions of the Civil Service Act. It also has the advantage in that under certain circumstances, the employees may gain the benefits of the Public Service Superannuation Act. Another possible advantage was that such a company could operate projects in various provinces more or less in the form of branch offices of the central company.

This solution was rejected, however, principally for the reason that again it had the appearance of a federal intrusion into the education field and it was desired so far as possible to prevent this appearance. It was also thought more likely that provincial co-operation with the scheme would be forthcoming if the provinces were given an opportunity to participate at the outset. Obviously, a solution along the lines of the National Research Council and provincial research councils would allow for better federal/provincial collaboration than could be done under the Companies Act. At that time, however, the country was faced with a minority government and a slowdown in legislature productivity because of the flag debate. (One province had indicated that it was prepared to go to its legislature for an act to set up a NewStart project, but at the federal level this was out of the question.)

Federal/Provincial Corporations

Accordingly, the solution adopted was that of the incorporation of a provincial society to operate within a province. It was felt that this form of organization would meet the requirements set forth above, namely, autonomy from direct control by either the provincial or federal governments, and freedom from governmental staffing and procurement problems. It would also afford opportunity for a province to co-operate in the formation of the society, in the appointment of the directors thereof, in approval of the plan of operations of the society, and in avoiding the appearance of federal intrusion into the sensitive area of education. Additionally, it would free the research organization from the typical restraints to be found in the federal and provincial educational and administrative structures.

The authority to form incorporated societies with provinces was already within the jurisdiction of the government and, therefore, there was no need to seek legislation.

It was readily apparent, then, that the device of a jointly owned incorporated society has several advantages:

1. its objectives can meld different but complimentary federal and provincial objectives.

2. it can unite what the federal government separates into federal and provincial jurisdictions (financial incentives for social programs vs. methodology and delivery of social programs).

3. it can permit a more rational apportionment of the costs of the work. For instance, similar experimental work conducted by a province under the terms of the Canada Manpower Training Program would be reimbursed for only 50% of its costs even though the federal government pays 100% of the operational costs of the training program. In other words, the federal government asks the provinces to pay 50% of the research costs of a fully funded federal program! The 100% federal costs worked out for the federal/provincially owned NewStart corporations were much more sensible when the results of the work were to be used in the 100% federally funded CMTP.

4. it can permit (indeed require) integrated activity across federal and provincial jurisdictions. For instance, NewStart operated in the federal jurisdiction of recruiting people for training, selecting them for training, placing them in training, and placing them after training. NewStart's major activity, however, was in the provincial jurisdiction of training methodology.

5. it can permit action without the interference of all the abominable no-men of public service commissions, public works, public purchasing agencies, etc.

To ensure the power of the executive director, and hence the "autonomy" of the project from various vested interests, he was also made chairman of the board of directors, and of the society itself. The structure was established to give one man (the executive director) about $1,000,000. a year, and a great deal of freedom to do with it what he would. There was no provision made for effectively monitoring the projects or asking the executive directors to be accountable for their experimental programs. (The Auditor General did check the financial performance.)

A Central Technical Support Agency

A "Technical Support Centre" was established (within what is now known as the Social and Human Analysis Branch of the Department of Regional Economic Expansion), to assist the NewStart corporations, but it never realized a substantially influential role. This was anticipated by the Quebec Minister of Education at the federal/provincial conference of January 13, 1966, when he asked if the Technical Support Centre would be given as much autonomy from administrative constraints as the projects were to receive. The Deputy Minister of Manpower and Immigration said the Technical Support Centre would get such freedom, if necessary.

The role of the Technical Support Centre in assisting the NewStart societies was to include the following activities:

1. gather information on existing programs and techniques.
2. anticipate some of the needs of the NewStart corporations by developing hypotheses, methods and materials for their use.
3. at the request of corporations, develop specific methods and materials for their use.
4. provide continuing consultation and exchange of information with and between the corporations.
5. encourage and assist the corporations to experiment with various methods.
6. with assistance of the corporations, design methods of evaluating the program.
7. collate and evaluate the total program and prepare methods and materials for widespread use.
8. provide administrative guidelines to ensure that expenditures were within the limits of the NewStart program.

The Role of the Executive Head

The creation of jointly owned federal/provincial societies was, then, something of an innovation which seemed very sensible. The provision of the power to the executive director was done equally deliberately, but whether it was as wise has yet to be decided. Interestingly enough, the structures of crown corporations were carefully examined in selecting the organizational model, but the roles of agency heads were not. When one examines the roles of the heads of the Bank of Canada, the CNR, CBC, Polymer, NFB, NRC, etc., one does note that John Grierson of the National Film Board, A.D. Dunton of the Canadian Broadcasting Corporation, and James Coyne of the Bank of Canada were men who performed their roles very differently from others in the same jobs. Therefore, to what extent the job can shape the man is questionable, but it is quite clear that the outstanding people had a very clear definition of their mission.

The roles assumed by the heads of various government corporations, including C.J. Mackenzie of the National Research Council, Dunton of the CBC, Donald Gordon of the CNR, Grierson of the NFB, and H.M. Tory, founder of NRC and several universities, represent the only Canadian tradition that might be followed. On the other hand, the United States has a long history of a great many private and "semi-autonomous quasi non-governmental" organizations which serve as training ground for both directors, executive directors, and management staff for foundations or government supported projects. The various leaders of the Company of Young Canadians did not provide admirable models; although they were noble people they did not have an adequate definition of themselves in their role as director.

The role that the executive director of a NewStart corporation defined for himself in terms of the work of the society, and relations with the two levels of government who appointed him, was very critical to the outcomes achieved. Some NewStart executive directors had a very distinct definition of their mission and role, and others seemed to have a confused conception of what they were doing.

The freedom accorded the executive director was both a strength and a weakness depending on the individuals involved. Certain organizational changes could have been made in the structure to ensure some greater adherence to the intent and principles of the program even if the role performance of the executive director could not be altered. Some suggestions for this would include:

1. mixed board of directors, including outside directors and some directors from each level of government, some staff of the society could also be included on the board.

2. the executive director not serving as the chairman.

3. a monitoring system which would require quarterly, or at least annual, program progress reports.

4. a system of determining research priorities and assigning them to the societies. This is the system used by the Department of Agriculture in assigning specific research projects to certain experimental farms. It would have prevented the great overlaps of experimental courses worked on by almost every NewStart society.

No federal department has a real conception of the methods of social invention or the stages of successive approximations required by social institutions to become the organizations they should. Although there are interminable reorganizations that take place in federal departments (the creation of a Department of Industry out of Trade and Commerce, and then putting them back together after a few years is only one of many examples), these changes are purely organizational and avoid the real issue. Too often governments rename programs rather than improve the programs themselves.

The question of the appropriateness of the provincially incorporated, jointly owned society must re-open the examination of the other forms of organization originally considered. At the present time the federal government is spending 20 times as much money on physical science research as on social science research. (This is why we are still grappling with old historic social problems such as prejudice, racial strife, linguistic antagonism, poverty, illiteracy, crime, etc.). It is also why technological inventions (e.g., the car and television) have a greater influence on our social life than do social inventions. Should the government decide to right the balance and significantly increase social research funds, then the organizational structure of social invention centres becomes very important. As a matter of interest, the NewStart program was the largest single project using social science research dollars in 1970. Therefore, the NewStart corporations on the one hand, and traditional government departments on the other, represented the two major distinct organization structures carrying on social research. The question remains that if the government were to dramatically increase the funds for social research, should it be channeled into organizations similar to NewStart societies?

The model presented by the National Research Council may be more appropriate in that (a) legislation could be enacted setting forth specific parameters of activity, (b) it would provide the authority of Parliament over the agency more than exists with the society, and (c) it could provide for certain controls such as the Financial Administration Act. Some problems might be encountered because of the federal government's view of the constitution. For instance, social research requires that the experimenters do things for and with people (e.g., train them, pay them, and collaborate with them). Therefore, the actual projects conducted at the federal and provincial levels must cut across the so-called jurisdictions of federal and provincial governments. The NewStart program did this very well. Similar provisions would need to be incorporated in any new social invention centre. The federal government might feel that it would be easiest to delegate all social experimentation to the provincial level, but in so doing, it would have to be prepared to abdicate its priorities for such research (as in the invention of better methods of teaching language, the invention of better ways of manpower training, etc.). It would also have to abdicate its right to require experimentation with any given methods of language training or whatever.

It is unlikely, however, that the federal Parliament would enact any legislation setting up a federal agency and give it some powers to take action in provincial jurisdiction. The corporate structure as represented by NewStart, therefore, would seem to be the most appropriate.

The one major change, however, would necessarily be the incorporation of a federal society which could itself (a) fund regional or federal/provincial research societies, (b) conduct research and development itself, and (c) provide the services of a technical support service to the federal/provincial societies. The federal society should have directors appointed in collaboration with appropriate provinces because of the crossing over of jurisdictions that is entailed in experimental social research.

The corporate form of organization was selected for the NewStart program because it permitted equality between governments in directing the program and because it permitted the project to operate in both jurisdictions. Such jurisdictional problems are not found only between levels of government. Indeed, too frequently, they exist very much between departments at the same level of government. At least three federal departments have identical programs of work orientation for the disadvantaged (Work Activities of National Health and Welfare; Manpower Corps of Regional Economic Expansion, and Basic Job Readiness Training of Manpower and Immigration). Three federal departments that pay people who have inadequate incomes have entirely different programs for them: welfare allowances for the very poor, insurance payments for the unemployed, and allowances and training for those in Manpower training. A corporate form of organization could permit more integration of these or other services that present legislation tends to set apart.

VIII. LOCATION OF SOCIAL INVENTION CENTRES

There are several important issues that must be considered in deciding the location for a social invention centre. Among them are the following:

1. A good library with up to date acquisitions in the subject matter of the projects undertaken by the centre. The library must be a part of the social invention centre itself or at least in the same building complex. The library should be used extensively during the formulation of the concept which will be researched and developed. The library must be not of books and periodicals alone, but also of program materials that have been used in related projects. This will include instructional materials, tests and other devices used in human resource development. The availability of very large collections such as the Educational Research Information Centre (ERIC) on microfiche at modest cost enables remote libraries to have an up to date and fairly complete library. One requirement to fully utilize this system, however, is the capacity to search the literature via computer. This requires access to an IBM 360 computer which is available in most major cities in Canada.

2. Access to a computer for literature searches as described above and for the processing of evaluation data. It is not necessary that the computer be in the immediate area unless the volume of work is such as to require social invention centre staff on a full time basis to be involved in the programming for computer runs. This is not generally required in social invention centres.

3. Access to professional and special services such as consultants, professional groups, other relevant specialized libraries, university personnel, etc., to permit the ready testing of ideas, the informal exchange of ideas and the more economic obtaining of contractual professional services. The larger the city in which the social invention centre is located, the more readily available are such services. On the other hand, the larger the centre, the more expensive many of these services are. However, as with many other things, the price does reflect the value and, therefore, the larger the centre the greater the benefit to the centre.

4. Access to decision makers is an important consideration. A social invention centre has many decision makers that it must constantly cultivate in order to (1) carry out research and development that it thinks is required, (2) obtain necessary approval in terms of funding, staffing, facilities, etc., (3) obtain approval for experimental field tests of new methods being developed, (4) make arrangements to gather data through

surveys and other means, (5) promote adoptions of the methods developed, (6) obtain feedback from users to gain information that can be used in re-development. All of this requires a constant interaction of staff of the social invention centre with a wide variety of federal, provincial and institutional personnel. It is, therefore, beneficial to be on a main air route with good connections with all parts of Canada.

5. Isolation from non-productive events. A social invention centre must be judged by the number, and value of its inventions and the extent to which they are put into use. A great deterrent to such productivity is the typing up of valuable staff time in the procedural rituals of the large bureaucratic organizations best exemplified by the Government of Canada. Examples may include frequent meetings on organizational problems, staffing of task forces to deal with urgent current problems, preparation of somewhat related position papers for conferences, or preparation of speeches for senior officials and politicians.

6. Interaction with potential adopters on a frequent basis. The preparation, experimental conduct and evaluation of a new method takes up to four years of intensive work and does not require frequent interaction with the federal bureaucracy that supports the work. Indeed, more frequent interaction is required with progressive institutions than either federal or provincial bureaucracies. In human resource development programs there is a pattern of program permissiveness that is greatest at the federal level and decreases through provincial levels but is still quite perceptible at the institutional level. This is in keeping first, with the federal viewpoint that methods of human resource development are in the provincial jurisdiction and, therefore, federal programs permit the use of a wide range of social methods. Similarly, many provinces delegate to individual institutions the selection of particular methodologies. Generally speaking, provinces look to the more progressive institutions to experiment with new methods and only when the new methods have demonstrated their value do provincial offices recommend the methods to other institutions for their consideration. It is in this context that provinces accept interaction between professionals in federal organizations and in provincial institutions, on the understanding, of course, that the relationship is collegial and not administrative.

The implications of this for the location of a social invention centre suggest that the centre have ready access to the more progressive social institutions. There is no one good location because each province must be dealt with separately and perhaps 20% of the related social institutions must be dealt with on a periodic basis.

The process of deciding to adopt a new measure is one of discussing the method with the developers, viewing it in action, adopting it for experimental use and adapting it for general use. This process should be initiated before the first prototype is developed by the social invention centre because the entire process is a slow one and requires an early start. At the same time as the relationship with such institutions is cultivated, it is important to establish and maintain a positive and useful relationship with the provincial department. However, this does not require as much time or frequent contact as with the progressive institutions.

Similarly, lesser contact is required with regional offices of federal departments (Manpower and Immigration, Indian Affairs, Regional Economic Expansion, etc.) even though these organizations may purchase the service from the provinces. Generally they do not require any particular social methodology and often disclaim an interest in such "provincial" matters.

The location of a social invention centre requires, therefore, ready transportation between it and institutions that might adopt the methods developed.

7. Cohabitation with a progressive social institution. A federal social invention centre is generally prohibited from using the methods that it has developed because of the general understanding that the federal government should limit its role to financing social programs whereas the province has the responsibility of delivering the social programs. Therefore, a social invention centre would find itself operating in a provincial field if it were to test out its own methods. For this reason a partnership needs to be established with one or more social institutions that are agreeable to testing out the new methods at each stage of development. It is important for the social invention centre to be able to have continuous daily interaction with the conduct of the initial test runs of the new methods in order to gain the most detailed observations on the use of the methods and to make the best plans for redevelopment of the procedures.

8. Access to clientele. The clientele for a social method may vary with each project. For instance, a cross section of clientele required might include natives, whites, illiterates, language students, vocational students, welfare recipients, psychiatric patients, aged, infirm, or any other classification of "disadvantaged" people.

The social invention centre requires ready access to such people in order that the staff have a first hand acquaintance with them. In this way the professionals can develop better judgement as to what is appropriate and possible rather than simply using the literature or the reports of others.

Because of the range of subjects that a social invention centre will address over the period of years, it is essential that the centre be located where most of these groups will be available. In some cases such groups are mutually exclusive. For instance, it is not likely to find both rural and urban residents in the same place. Thus, the largest and most cosmopolitan city is not necessarily the most appropriate.

Another factor to be considered is the purpose of the new methods to be developed and the implications this may have for location. For instance, if the project is to develop new methods of training rural residents for city industrial jobs the following factors have to be considered:

(a) How and where to gain the greatest understanding of (i) rural residents, (ii) the nature of employment and the skills required in urban industry, and (iii) the style of life in the country and in the city working class district for men, women and children.

(b) Whether the training is to be provided in the locale of the rural people or in the industrial neighborhood.

Experience with retraining programs would suggest that for a project like this it would be best to provide the academic upgrading in the home locale and the vocational training in the industrial locale. Under such circumstances it might be decided that an experimental unit would have to be located in a rural community and another in the urban area. This serves to emphasize that there is no one best location for a social invention centre and that it may require field stations to be located for a period of time in different settings. Finally, if the centre is expected to develop English and French programs simultaneously, it should be located in a bilingual area (although this might negate areas with sizeable native populations).

9. The politics of location. The location of an enterprise (whether it is an industry, school or government agency) is so important to a community from an economic standpoint that it is not often located or relocated without some political activity. Rivalries between cities or provinces for a given factory, for instance, provide ample evidence of the issues that can arise. These are relatively mild, however, compared to the reactions of a community when a government attempts to remove an institution from a community.

In some projects, and particularly experimental social programs, one may expect to find a mixed reaction to the clientele and to the project itself. A publicly financed program or institution is always a fair and popular target for criticism and it is, therefore, placed in a position that makes it difficult for it to experiment. It is perfectly legitimate for a social invention centre to make mistakes for this is at the very heart of the experimental process and it is impossible to develop new methods without the possibility of experimenting and hence making mistakes. It is essential, therefore, that a social invention centre develop a legitimacy for its role in the community where it is located. This acceptance must be gained from a number of sources including professionals, the media, chamber of commerce, politicians and other opinion leaders. As a matter of interest, it took some three or four years for Saskatchewan NewStart to gain this support in Prince Albert. The experience of that organization was that it was essential to have politicians of all parties to defend its actions and to promote its continuation.

10. The costs of relocation. The costs of relocating each employee and his family could readily amount to $2,000. each. The costs of preparing a new facility could amount to $130,000., (the cost of Saskatchewan NewStart's non-recoverable leasehold improvements), the costs of packaging and transporting the assets (probably $25,000.), but probably the most important cost would be in the several calendar months of lost work before, during, and after the move. This time would be lost in preparing for the move, in the process of the move itself, in unpacking, rearranging, etc., and finally in establishing the relationships with a local counterpart to re-establish the experimental program in collaboration with new provincial colleagues.

The location of a social invention centre is as important and sensitive an issue as locating a factory. There are a number of very important considerations that must be decided very carefully to ensure that the selected location will provide the most advantages to the project and ensure the least likelihood of a costly and disruptive relocation at a later date.

CONDITIONS FAVORING MAJOR ADVANCES IN SOCIAL SCIENCE

Analysis of 62 advances since 1900 shows that most
come from a few centers and have rapid effects.

Karl W. Deutsch, John Platt, Dieter Senghaas[1]

The environmental group conditions for creative success in the social sciences are a frequent subject for debate. It is not generally realized how much information about these creative conditions can be obtained from a statistical analysis of creative instances. To examine this question, we made a list of some 62 leading achievements in the social sciences in this century (see Table 1). With this list we have tried to explore the following major groups of questions.

1. Which were the major achievements, or advances, or breakthroughs in the social sciences from 1900 to 1965? Are there publicly verifiable criteria by which they can be recognized? Can such advances be called cumulative in the sense proposed by J. B. Conant -- that is, have successive advances been built upon earlier ones?
2. In what fields did such breakthroughs occur?
3. Did major advances relate mainly to theory, or to method, or to matters of substance? In what fields did such advances occur most often?
4. Are there any changes and trends over time in the incidence and characteristics of these breakthroughs?
5. Who accomplished such advances most often -- individuals or teams?
6. What were the ages of the contributors at the time of their achievements? Did they have any special personality characteristics?

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7. Were the results quantitative, explicitly or by implication?

8. Did such breakthroughs require much capital? Manpower? Other resources?

9. Where were they accomplished? At what geographic locations? At what types of institutions? Under what social and political conditions?

10. Where did the ideas come from? Were most advances made primarily within existing disciplines, or were they mainly interdisciplinary in character?

11. Did the major advances have any close relation to social practice? Were they inspired or provoked by practical demands or conflicts? Were they applied to practice? If so, were they applied by or to individuals, small or middle-sized groups, or national governments and states?

12. How long was the delay between each major breakthrough and its first major impact on social science or social practice, or both?

Some of the evidence bearing on these questions is summarized in Table 1 in relation to the 62 achievements in the years 1900-65. The achievements themselves were selected on the basis of our personal judgment as to their importance for social science in this century. We also called upon the opinions and advice of a number of colleagues in other fields, and we checked each contribution against the relevant entries of the recent edition of the *International Encyclopedia of the Social sciences* (1).

The full range of answers to our questions, including various kinds of statistical analyses, will be given elsewhere (2), but some of the broad results of more general interest are summarized here. There are three principal findings from this study.

1. There *are* such things as social science achievements and social inventions, which are almost as clearly defined and as operational as technological achievements and inventions.

2. These achievements have commonly been the result of conscious and systematic research and development efforts by individuals or teams working on particular problems in a small number of interdisciplinary centers.

3. These achievements have had widespread acceptance or major social effects in surprisingly short times; median times are in the range of 10 to 15 years, a range comparable with the median times for widespread acceptance of major technological inventions.

Table 1. Basic innovations in social science, 1900–65. Abbreviations in column 1: An, anthropology; Ec, economics; Math, mathematics; Phil, philosophy, logic, and history of science; Pol, politics; Psy, psychology; Soc, sociology. In column 6, + N indicates a larger number of collaborators with a less crucial share in the work. Abbreviations in column 7: QFE, quantitative findings explicit; QPE, quantitative problems explicit; QPI, quantitative problems implied; Non-Q, predominantly nonquantitative.

Contribution 1	Contributor 2	Time 3	Place 4	Type of support 5	No. of workers 6	Quantitative aspects 7	Years until impact 8
1. Theory and measurement of social inequalities (Ec)	V. Pareto C. Gini	1900 1908	Lausanne, Swit. Cagliari, It. Padua, It. Rome, It.	University chairs	1 + N	QFE	25
2. Sociology of bureaucracy, culture, and values (Soc)	M. Weber	1900–21	Freiburg, Ger. Heidelberg, Ger. Munich, Ger.	University chair with research support	1	QPI	20 ± 10
3. Theory of one-party organization and revolution (Pol)	V. I. Lenin	1900–17	Shushenskoe, Siberia London, Eng. Munich, Ger.	Underground party	1 + N	QPI	10 ± 5
4. Psychoanalysis and depth psychology (Psy)	S. Freud C. G. Jung A. Adler	1900–25 1910–30 1910–30	Vienna, Aus.	University institute of psychology	1 + N	Non-Q	30 ± 10
5. Correlation analysis and social theory (Math)	K. Pearson F. Edgeworth R. A. Fisher	1900–28 1900–30 1920–48	London, Eng. Oxford, Eng. Cambridge, Eng. Harfenden, Eng.	University chairs	1 + N	QFE	25 ± 15
6. Gradual social transformation (Pol)	B. Webb S. Webb G. B. Shaw H. G. Wells	1900–38	London, Eng.	Fabian society	4 + N	QPE	35 ± 5
7. Elite studies (Soc)	G. Mosca V. Pareto H. D. Lasswell	1900–23 1900–16 1936–52	Turin, It. Lausanne, Swit. Chicago, Ill.	University institutes	1 + N	QFE	40 ± 10
8. Unity of logic and mathematics (Phil)	B. Russell A. N. Whitehead	1905–14	Cambridge, Eng.	University institute	2	QPE	30
9. Pragmatic and behavioral psychology (Psy)	J. Dewey G. H. Mead C. Cooley W. I. Thomas	1905–25 1900–34 1900–30 1900–40	Ann Arbor, Mich. Chicago, Ill. Ann Arbor, Mich. Chicago, Ill. New York, N.Y.	University chairs	1	Non-Q	20 ± 10
10. Learning theory (Psy)	E. L. Thorndike C. Hull *et al.*	1905–40 1929–40	New York, N.Y. New Haven, Conn.	Teachers college, Institute of human relations	1 + N	QFE	20 ± 5
11. Intelligence tests (Psy)	A. Binet L. Terman C. Spearman	1905–11 1916–37 1904–27	Paris, Fr. Stanford, Calif. London, Eng.	Testing organizations	1 + N	QFE	15 ± 5
12. Role of innovations in socioeconomic change (Ec)	J. A. Schumpeter W. F. Ogburn A. P. Usher J. Schmookler	1908–14 1946–50 1922–30 1924 1966	Vienna, Aus. Cambridge, Mass. New York, N.Y. Cambridge, Mass. Minneapolis, Minn.	University chair and research program	1 + N	QPI	40
13. Conditioned reflexes (Psy)	I. Pavlov	1910–30	Leningrad, U.S.S.R.	Imperial medico-surgical academy	1 + N	QPI	20 ± 10
14. Gestalt psychology (Psy)	M. Wertheimer K. Koffka W. Koehler	1912–32	Berlin, Ger.	University chairs	3 + N	Non-Q	25 ± 5
15. Sociometry and sociograms (Soc)	J. L. Moreno	1915 1934–43	Innsbruck, Aus.	University chair	1	QFE	10
16. Soviet type of one-party state (Pol)	V. I. Lenin *et al.*	1917–21	Leningrad, U.S.S.R.	Politburo	1 + N	QPI	5 ± 5
17. Large-scale nonviolent political action (Pol)	M. K. Gandhi	1918–34	Ahmedabad, India	Political movement and institute (ashram)	1 + N	Non-Q	15 ± 10

Contribution 1	Contributor 2	Time 3	Place 4	Type of support 5	No. of workers 6	Quantitative aspects 7	Years until impact 8
18. Central economic planning (Ec)	Q. Krassin O. Grinko	1920–26	Moscow, U.S.S.R.	Government institute	1 + N	QFE	7 ± 6
19. Social welfare function in politics and economics (Ec)	A. C. Pigou	1920–56	London, Eng.	University chairs	1 + N	QPE	40 ± 10
	K. Arrow	1951	Stanford, Calif.				
20. Logical empiricism and unity of science (Phil)	M. Schlick R. Carnap O. Neurath P. Frank	1921–38	Vienna, Aus.	Vienna circle and university chairs	3 + N	QPI	20 ± 5
	L. Wittgenstein		Cambridge, Eng.				
	H. Reichenbach	1921	Berlin, Ger.	University chairs			
	C. Morris	1936–50	Chicago, Ill. Cambridge, Mass.				
21. Quantitative mathematical studies of war (Pol)	L. F. Richardson	1921–55	London, Eng.	University chair and research program	1 + N	QFE	25 ± 10
	Q. Wright	1936–66	Chicago, Ill.				
22. Projective tests (Psy)	H. Rorschach	1923	Herisau, Swit.	Cantonal mental institute	1	Non-Q	15 ± 5
	H. Murray		Cambridge, Mass.	University chair			
23. Sociology of knowledge and science (Soc)	K. Mannheim	1923–33	Heidelberg, Ger. Frankfurt, Ger.	University chairs, institutes, and programs	1 + N	Non-Q	10
	R. K. Merton	1937	Princeton, N.J.				
	D. deS. Price	1950–60	New Haven, Conn.				
24. Quantitative political science and basic theory (Pol)	C. Merriam S. Rice H. Gosnell H. D. Lasswell	1925–36	Chicago, Ill.	University chairs	3 + N	QFE	15 ± 5
25. Functionalist anthropology and sociology (An)	A. R. Radcliffe-Brown	1925	Cape Town, S. Afr. Sidney, Aus. Chicago, Ill. Oxford, Eng.	University chairs and travel grants	1 + N	Non-Q	20 ± 10
	B. Malinowski	1925–45	London, Eng.				
	T. Parsons	1932–50	Cambridge, Mass.				
26. Ecosystem theory (Soc)	R. Park E. W. Burgess	1926–38	Chicago, Ill.	University chairs	2 + N	QFE	25 ± 5
27. Factor analysis (Math)	L. Thurstone	1926–48	Chicago, Ill.	University chair	1 + N	QFE	15 ± 10
28. Operational definitions (Phil)	P. W. Bridgman	1927–38	Cambridge, Mass.	University chair	1	QPI	15 ± 5
29. Structural linguistics (Math)	R. Jakobson and Prague circle	1927–67	Brno, Czech. Cambridge, Mass.	University chairs and programs	1 + N	QPE	20 ± 10
	N. Chomsky	1957–	Cambridge, Mass.				
30. Economic propensities, employment, and fiscal policy (Ec)	J. M. Keynes	1928–44	Cambridge, Eng.	University chair	1 + N	QFE	6 ± 4
31. Game theory (Math)	J. v. Neumann	1928–44	Berlin, Ger.	University chairs and institute	2 + N	QFE	10 ± 5
	O. Morgenstern	1944–58	Princeton, N.J.				
32. Peasant and guerrilla organization and government (Pol)	Mao Tse-tung	1929–49	Kiangsi, P. R. China Yenan, P. R. China Peking, P. R. China	Political movement	1 + N	QPI	15 ± 10
33. Community studies (Soc)	R. Lynd H. Lynd	1929–62	New York, N.Y.	University chairs	2	QFE	20 ± 5
	L. Warner C. Kluckhohn	1941	Chicago, Ill.				

Contribution 1	Contributor 2	Time 3	Place 4	Type of support 5	No. of workers 6	Quantitative aspects 7	Years until impact 8
34. Culture and personality and comparative child rearing (An)	R. Benedict	1930	New York, N.Y.	University chairs, research projects, and travel grants	3 + N	Non-Q	20 ± 10
	M. Mead	1930					
	G. Gorer						
	A. Kardiner	1939					
	J. Piaget	1940–60	Geneva, Swit.				
	E. Erikson	1950	Cambridge, Mass.				
	J. Whiting	1953	Cambridge, Mass.				
	I. Child		New Haven, Conn.				
35. Economics of monopolistic competiton (Ec)	E. H. Chamberlin	1930–33	Cambridge, Mass.	University chairs	1	QPE	10 ± 5
	J. Robinson		Cambridge, Eng.				
36. Authoritarian personality and family structure (Psy)	M. Horkheimer	1930–32	Frankfurt, Ger.	Institute for social research and university	3 + N	QPI	20 ± 5
	H. Marcuse						
	E. Fromm						
	T. Adorno *et al.*	1950	Stanford, Calif.				
	A. Mitscherlich	1962	Frankfurt, Ger.				
			Heidelberg, Ger.				
37. Large-scale sampling in social research (Math)	M. Hansen	1930–53	Washington, D.C.	Government office	N	QFE	5
38. Laboratory study of small groups (Psy)	K. Lewin	1932–36	Cambridge, Mass.	University and research institutes	1 + N	QPI	10 ± 5
	R. Lippitt						
	R. Likert						
	D. Cartwright						
39. National income accounting (Ec)	S. Kuznets	1933–40	Philadelphia, Pa.	Public research institutes and university chairs	1 + N	QFE	10 ± 5
	C. Clark		Cambridge, Eng.				
	U.N. Statistical Office	1953	Washington, D.C. New York, N.Y.				
40. General systems analysis (Phil)	L. v. Bertalanffy	1936	Vienna, Aus.	University research institutes	4 + N	QPI	15 ± 5
	N. Rashevsky		Chicago, Ill.				
	J. G. Miller	1956	Ann Arbor, Mich.				
	A. Rapoport						
	R. W. Gerard						
	K. Boulding						
41. Attitude survey and opinion polling (Psy)	G. Gallup	1936	Princeton, N.J.	University and research institutes, commercial organizations	3 + N	QFE	5
	H. Cantril	1937–52					
	P. F. Lazarsfeld	1940	New York, N.Y.				
	A. Campbell	1942	Ann Arbor, Mich.				
42. Input-out analysis (Ec)	W. Leontief	1936–53	Cambridge, Mass.	University chair	1 + N	QFE	15
43. Linear programming (Ec)	L. Kantorovich	1938–50	Leningrad, U.S.S.R.	University research institutes and government office	1 + N	QFE	10 ± 5
	J. B. Souto	1941	Buenos Aires, Arg.				
	G. B. Dantzig	1948	Washington, D.C.				
	R. Dorfman	1958	Berkeley, Calif.				
44. Content analysis (Pol)	H. Lasswell	1938–56	Chicago, Ill.	University institute	2	QFE	10
	I. deS. Pool						
	B. Berelson						
	P. Stone	1961 66	Cambridge, Mass.				
45. Operant conditioning and learning; teaching machines (Psy)	B. F. Skinner	1938–58	Bloomington, Ind. Cambridge, Mass.	University chairs	1 + N	QPE	15
46. Statistical decision theory (Math)	A. Wald	1939–50	New York, N.Y.	University chair	1 + N	QPE	15 ± 5
47. Operations research and systems analysis (Math)	P. M. S. Blackett	1941–50	London, Eng.	Government research institutes	N	QPE	5
	P. Morse	1941–58	Cambridge, Mass.				
	R. Bellman						
48. Scaling theory (Psy)	L. Guttman	1941–54	Ithaca, N.Y.	University chairs	3 + N	QFE	10 ± 5
	C. Coombs		Ann Arbor, Mich.				

Contribution 1	Contributor 2	Time 3	Place 4	Type of support 5	No. of workers 6	Quantitative aspects 7	Years until impact 8
49. Quantitative models of nationalism and integration (Pol)	K. Deutsch B. Russett R. L. Merritt	1942–67	Cambridge, Mass. New Haven, Conn.	University chairs	1 + N	QFE	20 ± 5
50. Theories of economic development (Ec)	P. Rosenstein-Rodan R. Prebisch R. Nurkse W. A. Lewis G. Myrdal A. O. Hirschman R. F. Harrod E. Domar H. Chenery	1943–58	London, Eng. Santiago, Chile New York, N.Y. Manchester, Eng. Stockholm, Swed. New Haven, Conn. Oxford, Eng. Baltimore, Md. Stanford, Calif.	Government offices, U.N. regional commission, university chairs	6 + N	QFE	10 ± 5
51. Computers (Math)	V. Bush S. Caldwell D. P. Eckert J. W. Mauchly	1943–58	Cambridge, Mass. Philadelphia, Pa.	University and government research laboratories	N	QFE	10 ± 5
52. Multivariate analysis linked to social theory (Soc)	S. Stouffer T. W. Anderson P. Lazarsfeld	1944–54	Washington, D.C. Cambridge, Mass. New York, N.Y.	Government and university research institutes	3 + N	QFE	5
53. Information theory, cybernetics, and feedback systems (Math)	C. Shannon N. Wiener	1944–58	Cambridge, Mass. Orange, N.J.	University research institute and Bell Laboratories	2 + N	QFE	10 ± 5
54. Econometrics (Ec)	J. Tinbergen P. Samuelson E. Malinvaud	1935–40 1947 1964	The Hague, Neth. Cambridge, Mass. Paris, Fr.	Government institute and university chairs	1 + N	QFE	10 ± 5
55. Cognitive dynamics of science (Phil)	J. B. Conant I. B. Cohen T. Kuhn D. deS. Price	1946–64	Cambridge, Mass. Berkeley, Calif. New Haven, Conn.	University chairs	3 + N	Non-Q	15
56. Computer simulation of economic systems (Ec)	L. Klein G. Orcutt	1947–60	Philadelphia, Pa. Madison, Wis.	Research institutes	2 + N	QFE	5
57. Structuralism in anthropology and social science (An)	C. Levi-Strauss	1949–66	Paris, Fr.	Museum (government)	1 + N	QPI	15 ± 5
58. Hierarchical computerized decision models (Math)	H. Simon	1950–65	Pittsburgh, Pa.	University research institute	1 + N	QPE	10
59. Cost-benefit analysis (planned programming and budgeting) (Pol)	C. Hitch	1956–63	Santa Monica, Calif.	Government-related research institute	3 + N	QFE	7
60. Computer simulation of social and political systems (Pol)	W. McPhee H. Simon A. Newell I. Pool R. Abelson	1956–66 1958–64	Pittsburgh, Pa. Cambridge, Mass. New Haven, Conn.	University chairs and research institutes	2 + N	QPE	5 ± 3
61. Conflict theory and variable sum games (Psy)	A. Rapoport	1960–	Ann Arbor, Mich.	University research institute	1 + N	QFE	2
62. Stochastic models of social processes (Math)	J. S. Coleman	1965	Baltimore, Md.	University and research institute	1 + N	QFE	5

Criteria for Recognizing Major Advances in Social Science

The major achievements or breakthroughs selected for this study were defined as having the following characteristics. First, they either had to involve a new perception of relationships or they had to result in new operations, including scientific operations. That is, they had to help people see something not perceived before, as represented by new discoveries (statements of the form "there is ...") or new verifiable propositions (statements of the form "if ... then ..."); or else they had to create the possibility of doing something that had not been done before.

A second essential condition for any major contribution, whether of perceptions or of operations, was that it should have proved fruitful in producing a substantial impact that led to further knowledge. Impacts simply upon social practice were treated as interesting but nonessential.

We believe that the 62 contributions listed in Table 1 are among the most significant achievements in social science that satisfy these criteria of significance or for other purposes.

We omitted purely technical achievements such as television, in spite of their great impact on society, in the belief that they have thus far not contributed to social science in the way, for instance, that computers have. We also omitted the more purely political and organizational achievements, such as the National Aeronautics and Space Administration (NASA), the Manhattan Project, the British National Health Service, the European Common Market, the Tennessee Valley Authority, credit cards, "think tanks," the great public and private foundations, the Peace Corps, and the partial Nuclear Test Ban Treaty, although all these have intellectual components that would justify their inclusion in a broader list. On the same grounds, we omitted such primarily practical innovations as Henry Ford's development of the assembly line; the time and motion studies by F. W. Taylor and his followers; the studies of human relations in industry by F. J. Roethlisberger and his associates; the development of such rural organizations as the *kibbutzim* in Israel and the *kolkhozy* in the Soviet Union; B. Ruml's invention of the "pay-as-you-go income tax;" the development of high-information teaching by J. Zacharias and associates; man-and-computer designs as developed by C. E. Shannon, R. Fano, and others; and the proposal for a guaranteed annual income, or a negative income tax, by J. Tobin, M. Friedman, and other economists. By contrast, the innovations by Lenin, Mao, Gandhi, and the Webbs were included because they were connected with explicit theories.

Several contributions seemed to us to constitute borderline cases. In social psychology, these include the frustration-aggression hypothesis by J. Dollard, N. Miller, and their collaborators (New Haven, Connecticut, 1940); the theory of cognitive dissonance developed by L. Festinger, R. Abelson, and others (Stanford, California, and New Haven, 1956-57); the development of cognitive anthropology by F. Lounsbury and others (New Haven, 1956-68); the concept and measurement of the semantic differential by C. Osgood, G. J. Suci, and P. H. Tannenbaum (Urbana, Illinois, 1957); and the concept and partial measurement of achievement motivation by D. E. McCelland (Middletown, Connecticut, 1953, and later Cambridge, Massachusetts, 1961). At the borderlines of psychology, we find the discovery of a wider range of mind-influencing drugs; the works of K. Lorenz and others on "imprinting" in young animals; the broader explorations in the chemistry of memory; and the work on the electric stimulation on brain centers directing larger sequences of behavior, by J. Delgado and others. None of these have been included in our present list, primarily because we were not sure that the impact of any of these contributions on broader areas of the social sciences has been as large and lasting, so far, as the impact of the contributions that we did include. A future tabulation may well have to include some or all of these present-day borderline cases. In any case, a comparison with our tables in this article will show that an inclusion of these borderline cases would have strengthened rather than weakened the trends indicated by our major findings.

Clearly, other individuals and other schools of thought would have a different ranking for particular achievements, but one would hope that within our chosen boundaries there would be a considerable amount of overlap within the academic community in evaluating the top 50 to 70 contributions in this century.

An inspection of our list shows that many of the later contributions were clearly building on the earlier ones, and that they resulted in clear increases in the powers of social scientists to recognize relationships and to carry out operations. Many of the advances had a substantial impact on the subsequent development of several social sciences and on social practice as well. Together these advances add up to unmistakable evidence of the cumulative growth of knowledge in the social sciences in the course of this century. Today, statements such as "we know no more about human psychology and politics than Aristotle did" mainly express the ignorance of those who utter them.

Main Fields of Advances

The assignment of major social science innovations to particular fields is indicated in column 1 of Table 1, and their distribution among fields is shown in column 1 of Table 2. Table 2 reveals the leading position of psychology, economics, and politics with 13, 12, and 11 major contributions, respectively. On the average, therefore, a major advance was made every 5 or 6 years in *each* of these three fields.

Several contributions that involve the applications of mathematical and statistical methods to these subject fields are included in these numbers; thus linear programming and the computer simulation of economic systems were each coded as contributions to economics.

Table 2. Major social science contributions by field and focus, 1900 to 1965

Field	Total	Major contributions		Focus on theory		Focus on method		Focus on results	
	1900 to 1965	1900 to 1929	1930 to 1965	1900 to 1929	1930 to 1965	1900 to 1929	1930 to 1965	1900 to 1929	1930 to 1965
Psychology	13	7	6	6	3	6	6	6	6
Economics	12	5	7	4	5	4	6	5	7
Politics	11	7	4	7	2	2	4	4	4
Mathematical statistics	11	4	7	2	5	4	7	4	6
Sociology	7	6	1	4	1	5	1	6	1
Philosophy	5	3	2	3	2	2	2	0	1
Anthropology	3	1	2	1	2	0	2	1	2
Total	62	33	29	27	20	23	28	26	27

There were 11 major contributions that were primarily mathematical or statistical in nature but that were coded in a separate category, even though they may have had applications in various substantive fields. Factor analysis and information theory are two examples of this category. Although these coding rules tend to underrepresent the number of major advances in social science methods, it still appears that a major advance in mathematical or statistical method was made on the average at least once every 6 years.

Substantive advances in sociology seemed to have occurred once per decade, and in anthropology about once every 20 years. These calculations somehow underrepresent, however, the actual rate of progress in these fields, particularly with regard to sociology. Several of the advances in social psychology, political science, and even economics were almost as important for the progress of sociology as they were in their fields of origin.

Another five contributions resemble those in mathematics and statistics in that their primary impact was not in any substantive fields of social science. Since they were not primarily quantitative, however, we coded them in a separate category as philosophy, logic, and history of science. Russell and Whitehead's demonstration of the unity of logic and science, the work of the Vienna circle on the unity of science, and Kuhn's work on the role of paradigms in scientific revolutions are examples of such entries.

Theory, Method, or Substance?

Important advances typically combine theory, methods, and results, rather than choosing one of these elements as a focus of interest. Our analysis of these factors is summarized in Table 2. Most often such advances have cut across at least two of these aspects of social science and have often crossed all three of them. In the light of these findings the long-standing quarrel about whether to emphasize theory, methodology, or empirical results seems ill-conceived and obsolete. All three seem to form part of one production cycle of knowledge, and substantial advances in any one of these three phases are likely to lead to advances in the other two.

Trends with Time

Substantial social science advances at the level of importance examined here have been surprisingly frequent, averaging close to one advance per year. When we take into account the greater difficulty of estimating the full impact of social science contributions after 1950, which drastically reduces the number of such contributions in our count, it seems that this high frequency has remained at least undiminished since 1930. Social science investigators who need to keep informed in several disciplines thus face serious problems in the partial obsolescence of their information.

A more detailed analysis indicates that the distribution of advances shows a certain amount of clustering in time. Particular fields show "great periods" of 5 to 15 years during which substantial advances were frequent, and two such great periods, 1925-29 and 1940-44, are common to many fields. (If several promising contributions that we considered but did not include in our count should prove to be fundamental, then the decade 1955-65 may yet prove to have been another period of greatness.) Since great periods often last several years, whereas 10 to 15 years may be required for working out the implications of particular achievements or for applying them to practice (Table 1, column 8), it would seem rational to organize 10 or 15-year programs of support in any social science field after a few initial breakthroughs have occurred.

Individuals or Teams?

Individual researchers produced nearly two-thirds of all major advances over the entire 1960-65 period, but our study indicates that their share declined from about three-quarters of all contributions before 1930 to less than one-half thereafter (Table 1, column 6). Teams of social scientists, by contrast, increased their contributions from less then one-quarter before 1930 to more than one-half thereafter.

Teams of social scientists seem likely to be the main source of major advances during the next decade, but individual social scientists operating in the traditional "great man" or "lone wolf" styles will continue to be a significant, though secondary, source of new ideas.

Ages of the Contributors

The ages of the contributors at the time they made their breakthroughs have also been examined. Details of the analysis will not be given here, but for the entire period 1900-65, the median age group among 160 contributors was between 35 and 39 years, with a mean of 37 years. The modal age group, with 40 contributors, was a little older, in the range of 40 to 44 years. Slightly more than 40 percent of all contributors were more than 40 years old at the time of their contribution, but only 6 percent were over 50 years. They psychologists tend to be somewhat younger, the sociologists and anthropologists somewhat older, than the contributors in the other fields.

Since 1930 the contributors tend to be younger, with the modal age moving to the 30 to 34 age group. However, this could be an artifact, due to our better knowledge of the earlier stages of more recent developments. It also seems that the youngest contributors are in the fields with the largest number of contributors. Conceivably some fields are intrinsically more difficult today and require more experience for any successes.

It is worth emphasizing that older scientists are necessarily less numerous in any rapidly growing field, as D. Price has noted (3). Since the number of social scientists grew between 1900 and 1965 at a rate of about 5 percent per year, doubling every 14 years, the proportion of scientists in the age groups 20 to 34, 35 to 49, and 50 to 64 at any given time is roughly as 4:2:1. When the creativity curves are normalized to take account of these differences in numbers, the creativity of men over 50 for social science achievements of this sort is comparable to that of the men under 35, but the mode is still in the 35 to 49-year range.

Our findings on the ages of peak creativity in these fields are in fair agreement with those of H. C. Lehman for the fields of architecture, psychology, economics, and education theory (4).

Our biographical information is uneven and incomplete, but it suggests that the key members of the post-1930 teams were not colorless cogs in an anonymous machine. Usually we find among them strong and highly individualistic personalities, with some of the strengths and weaknesses found in the personalities of artists. Often they have appeared to some of their contemporaries as "rude and overbearing men," impatient with disagreement and obtuseness and unwilling to suffer fools or critics gladly. The decisive difference from the past is that today these creative individuals nonetheless know how to work with other people, how to support others, and how to elicit their cooperation and support in turn. Indeed, a surprising number of them founded significant organizations or institutes to carry on their work.

Are the Great Achievements Quantitative or Nonquantitative?

Quantitative problems or findings (or both) characterized two-thirds of all advances, and five-sixths of those were made after 1930 (Table 1, column 7). Completely nonquantitative contributions -- the recognition of new patterns without any clear implication of quantitative problems -- were rare throughout the period and extremely rare since 1930.. Nevertheless, they include such substantial contributions as psychoanalysis, Rorschach tests, and the work on personality and culture; thus, their potential for major contributions in the future should not be underrated. Certainly both types of scientific personalities, the quantifiers and the pattern-recognizers -- the "counters" and the "poets" -- will continue to be needed in the social sciences.

Requirements in Capital, Manpower, and Time

The making and testing of any new discovery require some kind of investment in the form of capital equipment, manpower, or the principal investigator's time. Libraries represent relatively low capital requirements per investigator, but special laboratories, computing facilities, and organizations for survey or implementation represent high capital requirements.

In manpower, the extremes are represented by a single scientist working at a desk, or by the need for large numbers of laboratory assistants, polltakers, or tabulating clerks. In time, some achievements may require relatively short periods of insight and working out, whereas others require years of the principal investigator's time and thought, as did Max Weber's historical and sociological studies or Freud's development of psychoanalysis. We have coded each contribution in terms of these three types of requirements and analyzed their distributions.

Of particular interest was the difference in high and low capital requirements for the quantitative and the nonquantitative contributions, as summarized in Table 3. Here we find that out of 26 high capital contributions during the entire period, 18 produced explicit quantitative findings, whereas out of 36 contributions with low capital requirements only 14 produced such explicit quantitative results. There was already a tendency toward higher capital requirements for quantitative work in the 1900-29 period, but it becomes considerably stronger after 1930 as high capital work has become more frequent.

Table 3. Capital requirements and quantitative results, 1900 to 1965. "High" and "low" refer to the level of capital required.

Type of result	1900 to 1929		1930 to 1965		1900 to 1965	
	High	Low	High	Low	High	Low
Nonquantitative results	1	6	0	2	1	8
Applications to quantitative problems explicit and/or implied	3	9	4	5	7	14
Quantitative findings explicit	4	10	14	4	18	14
Total	8	25	18	11	26	36

The perception of social science work as cheap -- a notion that is widespread among laymen and some university administrators -- seems based on the experiences before 1930, when only one-fourth of all major social science contributions required major amounts of capital. Since 1930 more than three-fifths of all contributions have required relatively large amounts of capital, particularly for survey research and large-scale tabulations (see Table 3), and this proportion seems likely to increase in the future. If explicit quantitative results are desired, the requirement for capital support becomes still stronger. Low-budget research, the work of lone individuals, or work on nonquantitative topics may play a smaller and smaller role. The industrial revolution in the production of knowledge has not only reached a large part of the natural sciences but has reached the social sciences as well.

Where the Pioneers Were

An analysis of major social science contributions by location is difficult because many investigators moved during the course of their work and because many advances involved the work of several investigators with changing institutional affiliations. Also, our own greater familiarity with some countries, institutions, and fields of social science may have distorted our assignments of location. Nevertheless, some relationships in the data come out so strongly that it seems unlikely that they could have been produced by errors of this kind, and they raise some interesting questions about the conditions for creativity in the social sciences.

The results of the geographical analysis of the data in column 4 of Table 1 are shown in Tables 4 and 5. In this coding we have counted all locations where any of our 62 important advances appear to have been initiated, which gives a total of 101 locations. However, the contribution of an advance initiated elsewhere was not counted separately, even if the initiator had moved to the new location to carry on his work. Thus, the work of the Vienna circle in the philosophy of science was credited both to Vienna and Berlin (H. Reichenbach) but not to Chicago, where the work was continued after 1936.

Table 4. Geographic locations of major social science advances, 1900-65 (by continents and by countries in Europe)

By continents

	Europe	North America (U.S.A.)	Other	Total
1900-29	33	12	4	49
1930-65	11	41	0	52
1900-65	44	53	4	101

By countries in Europe

	England	Germany	Russia	Austria	France	Switzerland	Other	Total
1900-29	13	8	4	3	1	2	2	33
1930-65	4	2	1	1	1	0	2	11
1900-65	17	10	5	4	2	2	4	44

Tables 4 and 5 show that in the period 1900-29 Europe produced three-fourths of the contributions, but after 1930 the United States produced more than three-fourths, even though our method of coding tended to favor the assignment of contributions of their first origins in Europe. (Of the American contributions in the second period, only five could be credited in the main to European-born Americans.)

Two countries, the United States and Britain, produced more than 50 percent of all major social science contributions in the 1900-29 period, and almost 90 percent in the 1930-65 period. After 1930 contributions made in the United States greatly exceeded those from the rest of the world.

Within countries, a very few capital cities or university centers accounted for the great majority of all contributions; other cities and university centers of comparable size contributed little or nothing (see Table 5). Of the British contributions, one-half or more came from London and one-third from Cambridge, but the social science contribution of Oxford was minor. In the United States, one-half of all contributions before 1930 came from Chicago (7 out of 12). For 1900-65 as a whole,

Table 5. Geographic locations of major social science advances, 1900 to 1965 (by cities).

	1900 to 1929	1930 to 1965	1900 to 1965
England			
London	7	2	9
Cambridge	4	1	5
Oxford	2	0	2
Manchester	0	1	1
Total	13	4	17
Germany			
Berlin	3	1	4
Heidelberg	2	0	2
Frankfurt	1	1	2
Munich	1	0	1
Freiburg	1	0	1
Total	8	2	10
Austria			
Vienna	3	1	4
Russia			
Lenigrad	2	1	3
Moscow	1	0	1
Shushenskoe, Siberia	1	0	1
Total	4	1	5
Others in Europe			
Paris	1	1	2
Turin	1	0	1
Lausanne	1	0	1
Herisau	1	0	1
Bruno	1	0	1
Rotterdam	0	1	1
Stockholm	0	1	1
Total	5	3	8
United States			
Chicago	7	3	10
Cambridge	1	9	10
New York	2	5	7
Washington	0	5	5
Ann Arbor	1	3	4
New Haven	1	3	4
Ithaca	0	2	2
Pittsburgh	0	2	2
Philadelphia	0	2	2
Princeton	0	1	1
Orange	0	1	1
Baltimore	0	1	1
Madison	0	1	1
Bloomington	0	1	1
Berkeley	0	1	1
Santa Monica	0	1	1
Total	12	41	53

three centers -- Chicago, Cambridge, and New York -- provided more than one-half of all American contributions, with Washington, Ann Arbor, and New Haven providing another one-quarter. Since these six centers represent only a small minority of American social scientists [20 percent in the 1968 edition of *American Men of Science* (5)], they evidently achieved an increase in effectiveness by an order of magnitude for the men working in these centers, with one-fifth of the scientists producing about three times as many contributions as the remaining four-fifths. By contrast, centers like Berkeley and Princeton, so eminent in other scientific fields, each initiated only one major social science contribution during these 65 years, and a metropolis like Los Angeles made no contribution at all.

These concentrations of social science achievements in particular countries and particular centers seem to be even more marked than the concentrations in modern physics and biology, and they do not seem directly related to any general factors such as increased war funding or science funding in the fields involved. We surmise that contributions to social science may be extremely sensitive to external economies, such as the presence of local subcultures with other first-rate investigators and facilities in other fields, as well as to an intellectual climate specifically favorable to social science in the country and in the local community.

More than three-quarters of all contributions were made under democratic regimes. The remnant were made under authoritarian regimes and under communist dictatorships. Anticommunist totalitarian dictatorships such as Italian Fascism, German National Socialism, and Japanese militarism produced no major social science contributions at all.

In institutional terms, universities have been the prime source of intellectual advances (Table 1, column 5), but in the later period it is the university and government interdisciplinary institutes and "think tanks" that have accounted for about two-thirds of all contributions, as shown in Table 6.

Table 6. Types of institutions where major social science advances were initiated, 1900 to 1965.

Type	1900 to 1929	1930 to 1965	1900 to 1965
1. University chair or lectureship	19	10	29
2. Institute or project	6	12	18
3. Government research organization	2	7	9
4. Combined items 2 and 3	8	19	27
5. Nongovernmental political organization	5	0	5
6. Other	1	0	1
Total	33	29	62

Disciplinary or Interdisciplinary?

Interdisciplinary work has been a major intellectual source of contributions throughout the period; responsible for nearly one-half of all advances from 1900 to 1929, it produced nearly two-thirds of the total thereafter. This growing importance of interdisciplinary work reinforces our finding of the great importance of locating social science work at major intellectual centers, in proximity to many kinds of information and expertise from many disciplines. Locating a highly specialized social science enterprise at a small town or college, "far away from all distractions" seems, on the contrary, to be a very promising prescription for sterility.

Relation to Social Practice, Demands, and Conflicts

Details will be omitted here, but our analysis indicates that practical demands or conflicts *stimulated* about three-fourths of all contributions between 1900 and 1965. In fact, as the years went on, their share rose from two-thirds before 1930 to more than four-fifths thereafter. The contributions of "ivory-tower" social scientists in the future seem apt to be minor indeed.

Major social science advances were *applied* to social practice in almost exactly the same proportion as they were stimulated by it, and they showed considerable practical importance. Applications were most frequent at the level of social groups. Applications to problems of individuals occurred in about one-quarter of the cases in both periods. Applications to national policy increased from about one-third before 1930 to about two-thirds thereafter.

Increasingly, however, the same social science contributions produced applications at more than one level of the social system. Applications to individuals and groups, to groups and states, or to all three levels together rose from less than one-half of all advances before 1930 to more than two-thirds of all advances between 1930 and 1965.

On the record, major advances in social science have been highly usable in practice and increasingly more so in the recent past. In all likelihood, such advances will be still more usable in the years ahead, if we take the trouble to make them so.

Time Delay in the Impact of Major Social Science Advances

Like all advances in any science, social science advances take time before they have any identifiable impact on a broader field of scientific activity or on the practical affairs of society. Our estimates of this delay for each of the advances on our list are given in the last column of Table 1.

For the period 1900-65 as a whole, the minimum delay of the impact for nearly three-quarters of the major advances was less than 10 years, the median delay was about 10 years, and the maximum delay was in the neighborhood of 15 years. These figures may understate the true length of the delay because for the recent period, as for any time-limited study, the achievements with longer delays are less likely to be recognized and are underrepresented. As a practical rule of thumb it may be safer, therefore, to expect the first major impact of a social science advance to be delayed by 10 to 15 years after its inception.

Nevertheless, the delays in the recent period seem to have been decreasing, as might be expected in a society with greatly increased higher education and faster communications networks. The most frequent median delay time dropped from between 11 and 20 years in the years 1900-29 to less than 10 years in the years 1930-65; and the most frequent maximum delay time declined from about 25 years before 1930 to about 15 years in the more recent period. If one wishes to extrapolate from these data, one might surmise that the time lags of impact may be further shortened in the future. However, part of this decrease in the time delay may be due to the tendency of research institutions or governments today to support research that is expected to have an early impact on practical affairs, and it may not be characteristic of more fundamental contributions.

These time data suggest the desirability of extending the support of fundamental social science research efforts in the form of 10 to 15-year programs at clearly favorable locations. This more sustained support might encounter political and bureaucratic difficulties, but it would seem to be the most promising strategy for making and consolidating advances like those described here in our basic understanding of social relationships and in our ability to solve pressing social problems.

The radical increase in natural science knowledge and in its application has produced a radical increase in the problems of coordination in all industrialized societies. To cope with this radical increase in urgent problems it seems essential to produce an early and large increase in social science knowledge and its constructive applications. The evidence here suggests that the intellectual and organizational means for such an increase are at hand if we care to use them.

References and Notes

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EDUCATIONAL INVENTIONS

INVENTION	WHEN	WHERE	WHO	WHY
Oral Examination	Pre 3500 B.C. (REF.: 5, p. 20)	Wherever Primitive Tribes lived	Primitive Tribes	"Probably the initiation ceremonies by which primitive tribes have tested the knowledge of tribal customs, endurance, and bravery of their men prior to their admission to the ranks of adult males are among the earliest examinations employed by human beings."
Pictographic Symbols	3500 B.C. (REF.: 25, p. 36)	Sumer	Priests	Pictographic symbols or signs developed as a method of record keeping concerning property and business dealings of the temples.
Cuneiform Writing	3000 B.C. (REF.: 11, pp. 634-637)	Sumer	Sumerians	Sumerians began to write when they began to associate sounds with various symbols. Cuneiform writing was more efficient than using pictographs.
Shorthand	3000 B.C. (REF.: 25, pp. 57-58)	Egypt	Scribes	Hieractic script, a kind of shorthand, was to be used for all practical purposes of state, economy and science. It was much simpler to use than the 'pictographic like' hieroglyphics.
Tuition Fees	2500 B.C. (REF.: 9, p. 663)	Sumer	Higher Classes	"In private schools at any rate the headmaster had to make his living by means of tuition fees collected from students."
School - Elementary and Secondary, (No distinction was made)	2500 B.C. (REF.: 10, pp. 2; 9, pp. 658-63)	Sumer	Priests	"First established for purpose of training the scribes required to satisfy the economic and administrative demands of the land, primarily those of the temple and palace." Usually attached to temple.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
University	2500 B.C. (REF.: 3, p. 99)	Sumer	Sumerians	Schools of higher education were called houses of wisdom. Higher education included linguistics, theology, magic arts and medicine, astronomy and mathematics. Usually associated with a temple.
University - Higher and Professional Education	2300 B.C.	Egypt	Priests	"Teachers were themselves professional men", and they used various places for instruction. "They had many manuscripts in literature, history, and science, and these manuscripts formed a kind of base around which professional studies were built."
Written Examinations	2200 B.C. (REF.: 8, p. 37)	China	National Government	"China had an elaborate national system of examinations for the purpose of selecting her public officials and these examinations have been known through the ages for their unusual severity."
Textbooks 'Manuals of Instruction"	2000 B.C. (REF.: 25, pp. 59-60)	Egypt	Those who taught scribes	The 'Manuals" were used as models in learning to read and write the language, define social goals, and aid instruction in schools.
Staff Training; 'department schools'	2000 B.C. (REF.: 25, p. 59)	Egypt	Heads of Egyptian bureaus or departments (civil service)	Bureaucrats required personnel trained to work in government departments; e.g., the Egyptian treasury required scribes with accounting skills, hence they would train 'silver scribes'. The military would train their own scribes.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Professional Associations	1700 B.C. (REF.: 25, p. 44)	Mesopotamic	Diviners, priests,	These highly educated professionals formed associations for mutual protection against political and social upheavals and to preserve their knowledge.
Picto-syllabic Script	1700 B.C. (REF.: 25, p. 74)	Crete	Minoans	As this 'script' has never been fully deciphered, interpretation is difficult; yet it is thought to have been an attempt to record history.
Written Language	1500 B.C. (REF.: 25, pp. 77-78)	Mycenaean Greece	Greeks	It was not yet a fully developed written language; but it served its purpose of maintaining contact among several Mediterranean societies existing side by side.
Fully Developed Alphabet	800 B.C. (REF.: 25, p. 83)	Greece	Teacher-Scholars	The 'innovation' of symbols for verbs was the culmination of a truly 'written' alphabet; the alphabet served to make reading and writing much easier; contact among scholars was more easily maintained.
State Control of Education	594 B.C. (REF.: 15, pp. 56-57)	Athens	Solon	"....The state was vested with authority to supervise education. However in actual practice the state was reluctant to use this authority."
Education Available to all Social Classes	500 B.C. (REF.: 25, pp. 81-89)	Athens	The State	The Athenian concept was good citizenship should include an education for the young, whose family could pay the fees.
Education Benefits for the Male Children of Veterans	500 B.C. (REF.: 25, p. 87)	Athens	The State	The Athenian government recognized an obligation to soldiers who had been killed; hence they paid the educational fees for boys whose fathers had been killed in wars.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Teachers' Contract - Sophists	445 B.C. (REF.: 15, p. 78)	Athens	Protagoras	"The innovation in educational practices introduced by the Sophists was to contract with the students for a course of instruction which may have lasted as long as three years."
Compulsory Military Education	335 B.C. (REF.: 25, p. 101)	Athens	Athenian Assembly	Recurring wars forced state intervention in education, namely military training, to preserve the very existence of Athens.
"Socratic" Method of Education	300 B.C. (REF.: 25, p. 93)	Athens	Socrates	This method, one of question and answer, was an alternative to memorization of what others had said; it was a necessary innovation in making education a dynamic process.
Elementary Schools (as distinct from secondary) to Teach Latin	200 B.C. (REF.: 25, p. 118)	Rome	Roman Scholars	Such schools met nationalistic demands to make Latin the national language of Republican Rome: the advancement of Latin was furthered.
State Schools	46 B.C. (REF.: 21, p. 93)	Rome	Caesar	"The beginnings of a system of state-schools were laid by Caesar, when he gave the franchise not only to all doctors who were living at Rome or should settle there, but also to all teachers of liberal arts."
State Supported Schools	75 A.D. (REF.: 21, pp. 93-94; 2, p. 12)	Rome	Vespasian	"The first endowment on the part of the state was due to Vespasian, who was the first to endow Latin and Greek rhetoricians with a stipend of 100,000 sesterces to be paid from the Imperial Treasury."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Government Grants to Selected Educational Institutes	100 A.D. (REF.: 25, p. 123)	Rome	Emperors such as Vespasian and Pius made these	Usually these grants were the results of vested interests; e.g., schools attended by members of wealthy families might receive a grant; these grants offset the cost of paying teachers which had been made a municipal matter by Antoninus Pius.
Bilingual Education	100 A.D. (exact date uncertain) (REF.: 25, p. 121)	Rome	Roman Scholars	It was felt a Roman scholar would be much better educated if he knew both Greek and Latin.
Catechetical Method - Catechetical Classes and Schools	100 A.D. (REF.: 20 p. 106; 15, p. 236)	Alexandria	Established Philosophers	"The older and more experienced Christians prepared lists of questions most frequently raised by the non-believers provided well-thought-out answers for each question. These questions and their answers ....were taught to the younger missionairies...."
Municipal Support of Teachers	140 A.D. (REF.: 25, pp. 123-24)	Rome	Antonius Pius	Antonius Pious desired to see the public treasury relieved of some of the costs of education; hence he laid upon the cities the obligation of paying teacher salaries.
Monastic Schools	350 A.D. (REF.: 15 p. 241)	Europe	Monks	"Monastic schools...were the first Christian schools. Their religious purposes were entirely clear, but they had literary objectives intended to supplement and complement moral and religious formation."
'Licensed' Teachers (by appointment)	362 A.D.	Rome	Emperor Julian	"Julian in A.D. 362 asserts the right of the Emperor to revise the appointments to professorships. Hitherto

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 21, p. 96; 2, p. 12; 15, p. 209)			it had been the exception for the Emperor to make the nomination himself....."
Schedule of Teachers' Salaries	376 A.D. (REF.: 21, p. 96; 2, p. 12)	Roman Empire	Emperor Gratian	"In A.D. 376....the Emperor Gratian issued an edict which....fixed the salaries which were to be given."
State Supported University	410 A.D. (REF.: 25, p. 124)	Constantinople	Emperor Theodosius (408-50)	Roman interest in higher education had reached its zenith; Theodosius II set up the university to meet this interest.
Schools to Educate Clergymen	782 A.D.	Europe	Charlemagne	Many clergymen (monks) were poorly educated, if not illiterate. Charlemagne set up schools to remedy this situation.
School of Public Administration	782 A.D. (REF.: 25, p. 150)	Aachen	Charlemagne	Educated personnel for the administration of the Holy Roman Empire and operation of schools were needed.
Cathedral Schools	825 A.D. (REF.: 20, p. 190; 15, p. 292)	Rome	Council of Churchmen	A council in Rome "made it clear that the specific instruction should be given in schools connected with the cathedrals. Furthermore these schools....were to be of a more advanced nature than the classes which taught elements of religion."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Grammar Study	825 A.D. (REF.: 20, p. 110)	France	Cathedral Schools	"The first requirement of the students was to learn the language of church literature.... The instruction was given a grammatical orientation with much attention to the rules and special vocabulary of religious office."
Schooling on a Parish Basis	853 A.D. (REF.: 25, p. 152)	Europe	Council of Rome	Organization of schooling was needed; only the church had sufficient organization to provide widespread education in rural areas; the priest was responsible for the schooling of boys in his parish.
Modern University - University of Paris	1000 A.D. (REF.: 20, p. 192	Paris	Abelard	"It is generally agreed that the work of .... Abelard....contributed substantially to the formation in Paris of a general body of students who had completed the studies provided at the lesser collegiate and cathedral centres. It was out of this body of advanced students that the institution which became the University of Paris was formed."
Grammar Schools	1100 A.D. (REF.: 20, p. 197)	Europe	Priests	"To meet the need for proficiency in Latin, the collegiate and cathedral schools began to give more attention to the technicalities of Latin grammar. These schools....took on more of the nature of preparatory schools."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Deductive Approach - Deductive Logic	1100 A.D. (REF.: 20, p. 198)	Europe	Priests	"The university scholar in the days of scholasticism was expected to be proficient as a dialectician. Therefore, formal study in the process of deductive logic came to occupy an important place in the curriculum of the preparatory or grammar schools."
Licensing of Teachers by Qualifications	1179 A.D. (REF.: 25, p. 163)	Europe (parishes)	The Third Lateran Council of the Roman Catholic Church	It was decided that those who were to teach must have proper qualifications to preserve a standard of education. Every cathedral school was to have a licensed teacher.
Secular Town Schools	1200 A.D. (REF.: 25, pp. 163-64)	Germany	Town Councils	Municipal authorities wished a greater say in local education; they set up schools under their own jurisdiction where they would make the decisions about the schools.
Faculty Associations	1212 A.D. (REF.: 25, p. 178)	Vatican City	Pope Innocent III	To provide protection for teachers against outside influence. Innocent III granted the right to form such associations.
Granting of A Degree: ("licentia")	1215 A.D. (REF.: 25, p. 179)	University of Paris	Faculty of Arts	To regulate and control school entrance, study and advancement to faculty posts.
Public School	1382 A.D. (REF.: 25, p. 164)	Winchester, England	William of Wykeham	Some teachers wished to be free of church influence and earn their living by teaching; increasing secular power allowed this development.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Humanistic School	1428 A.D. (REF.: 20, pp. 202-3)	Mantua	School of Vitorino de Feltre	"His object became that of preparing the sons of his elite patrons for their adult roles as men of affairs. To this end he utilized the historical, scientific and philosophical context of the newly recovered learning."
Boarding School	1428 A.D. (REF.: 20, p. 203)	Mantua	Vitorino de Feltre	"It was, in fact, the forerunner of a long line of famous boarding schools, some of which, notably several of the great public schools of England, are still in existence today."
High Schools	1525 A.D. (REF.: 23, pp. 191, 194)	Nuremberg, Germany	Melanchthon	Education was divided into two levels; grammar and high schools: to ensure "that pupils shall not pass to more advanced subjects until they are fit for them".
Vernacular Reading Schools - Parochial School	1528 A.D. (REF.: 20, p. 116; 15, pp. 385-7; 4, pp. 79-81)	Brunswick, Germany	Johannes Bugenhagen	"The interest of the Protestant reformers in offering instruction in reading marks the beginning of the parochial school movement identified with some sects even to this day." Luther formulated educational ideas but it was left to Bugenhagen to put them into effect.
Concept of Grades or Forms	1537 A.D. (REF.: 20, pp. 203-4, 91-2; 15, p. 395)	Strasbourg	Johannes Sturm	"The practice of dividing the curriculum of the new grammar schools into grades or forms seems to have been introduced by Johannes Sturm...." "Each class had a definite objective and the work to be accomplished during the year was set down with absolute detail."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Society of Jesus (Jesuits)	1540 A.D. (REF.: 25, pp. 188-189)	Paris	Ignatius Loyola	Formed to 're-educate' those who had fallen onto the paths of heresy; their system of schools was extremely efficient.
Inductive Approach - Inductive Logic - Emphasis on Mathematics	1600 A.D. (REF.: 20, pp. 205)	Europe	Rationalists	"The deductive logic ... was now replaced by the rules of inductive logic; and mathematical subjects replaced the disputations as exercises in the use of reasoning as the method of inquiry."
Method of Instruction for teaching languages	1632 A.D. (REF.: 23, pp. 243)	Poland	Comenius	To systematize and make more efficient the instruction of language classes; aid in the pursuit of multi-linguilism. Comparison and correlation of different language structures and symbols to show how another language should be spoken.
Phonetic Method of Teaching Reading	1639 A.D. (REF.: 23, pp. 260)	France	Pascal	"Sound-values" for letters were used to help people learn to read more easily and efficiently.
School Book with Pictures	1652 A.D. (REF.: 25, pp. 188)	Hungary	Comenius	To aid students in understanding the subject matter; keep interest in the book high.
Forcing Teachers to Conform to State Policies	1662 A.D. (REF.: 25, pp. 188)	England	Charles II	Education was being taken from church control and used to inculcate state aims; a method of social control.
Teacher Training Class	1672 A.D.	Lyons, France	Father Demia	"First teacher training class on record was conducted by Father Demia."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Simultaneous or Class Instruction	1684 A.D. (REF.: 4, pp. 185, 223)	Rheims, France	St. Jean-Baptiste de Lasalle	"Pupils were divided into weakest, mediocre, and most capable group; and teaching of children in classes was practiced."
Normal School	1685 A.D. (REF.: 19, pp. 136; 15, pp. 435)	Rheims, France	Abbe De La Salle	"He established two more Seminaries for school masters in Paris. Practice teaching done under experienced teachers."
School for Girls	1686 A.D. (REF.: 22, pp. 385)	St. Cyr	Mme. de Maintenon	The school became famous for the brilliance of its instruction. The liberal education, however, made the girls too witty, high spirited and worldly for the taste of the founder, and after 1692 the school was turned into a convent.
Religious Freedom for Teachers	1689 A.D. (REF.: 25, pp. 188)	England	William and Mary of Orange	The position of the Church of England was now quite secure, so religious freedom was allowed to level off increasing protest, particularly from Puritan teachers.
Vocational Education - Trade School	1695 A.D. (REF.: 19, pp. 128)	Halle, Germany	August Herman Francke	"Included wood-working and manual occupations. In 1707 Gemler opened a school for apprentices, teaching mathematics, and other subjects related to the trades."
Academic Freedom	1698 A.D. (REF.: 23, pp. 283)	Germany	Francke	This was done to allow freer teaching at a greater range of subjects and methods in teaching. Teachers were given a measure of protection against outside influence.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Compulsory Attendance	1717 A.D. (REF.: 2, pp. 84; 22, pp. 369)	Prussia	Frederick William I	"The work of France in the preceding century and the rapid development of the Pietistic schools led to the decrees of 1717 in which Frederick William I made attendance in the elementary schools of Prussia Compulsory." He founded 1700 schools to meet the needs of the poor.
Government Construction of Schools	1737 A.D. (REF.: 25, pp. 357)	Prussia	Frederick William I	This was to further streamline and modernize education in Prussia.
State Support of Teachers	1737 A.D. (REF.: 25, pp. 357)	Prussia	Frederick William I	To bring control of education (who taught what) under closer governmental control.
Monitorial System of Teaching	1747 A.D. (REF.: 22, pp. 16)	Paris, France		Use children as monitors or teacher assistants, and break the learning process down into the smallest steps so that one master could teach hundreds of students.
Adult Education	1754 A.D. (REF.: 19, pp. 119)	Wales	William Singleton and Samuel Fox	"To instruct working men and women."
School for Deaf - Sign Language	1760 A.D. (REF.: 19, pp. 118)	Paris	Abbe De L'Epee	"Opened the first school for deaf." The school was taken over by government in 1761. He invented the sign language used by the deaf."
Public Schools	1763 A.D. (REF.: 2, pp. 60, 84; 20, pp. 243)	Prussia	Frederick the Great (Frederick William II)	"The spirit of nationalism swept through Europe late in the eighteenth century. Resourceful political leaders soon came to see education as a means for building a strong state ... Prussia built a national system of free schools ... These schools were supported and controlled by the state."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
State Licensing of Teachers	1763 A.D. (REF.: 25, pp. 358)	Prussia	Frederick William II	This was done to improve the quality of education and was the beginning of full Prussian control of education.
State Regulation of Textbooks and Curriculum	1763 A.D. (REF.: 25, pp. 358)	Prussia	Frederick William II	This was done to improve the quality of education, regulate what was taught, and see that state interests in education were protected.
Chair of Pedagogy	1779 A.D. (REF.: 23, pp. 311)	Halle, Germany	Baron von Zecllitz	This was done to promote university study and pedagogy; the scope of education was widening.
Sunday Schools	1780 A.D. (REF.: 25, pp. 339)	Gloucester	Robert Raikes	Many children worked in factories six days a week; education was only possible on their 'free' day, Sunday.
Infant Schools	1781 A.D. (REF.: 25, pp. 339)	Scotland	Robert Owen	This was education for young children (3-6 yrs.) whose parents worked all day in factories and others would receive no schooling.
School for Blind	1784 A.D. (REF.: 19, pp. 115)	Paris	Valentin	"L'Institution Nationale des Jeunes ... the first school for the blind in the world. Early support was philanthropic and charitable, but state aid has gradually replaced private funds."
Full State Authority Over All Levels of Education	1787 A.D. (REF.: 25, pp. 357-358)	Prussia	Frederick William II	Education was tailored to meet the needs of the state under a ministry of education; to coordinate and supervise education.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Sense Teaching	1800 A.D. (REF.: 20, pp. 235)	Burgdorf	Pestalozzi	"His procedure, especially with the younger children was to take them on walks through the gardens, the fields, or the woods." In studying such things as trees and plants, he hoped children would accumulate sense data out of which right actions could be formed.
Government Monopoly on Secondary Schools; Church Schools Suppressed	1794 A.D. (REF.: 25, pp. 352)	France	Napoleon I	To prepare the students of the wealthy (who could afford the fees) for entry into the civil service; a study of the classics and humanities.
Teachers' College	1808 A.D. (REF.: 25, pp. 353)	Paris	Napoleon I	To ensure teachers were well prepared to teach; and fill the needs of the secondary school system set up in 1802.
Technical Schools	1810 A.D. (REF.: 20, pp. 247)	University of Berlin	Government	"To meet the need for more advanced training in scientific fields, a number of higher technical schools were established, the most famous of which was the University of Berlin..."
Specialized School of Engineering	1815 A.D. (REF.: 25, pp. 351-352)	France	Government sponsored	Engineering was recognized as a learned profession which could contribute greatly to the advancement of science.
Graduate Programs	1820 A.D. (REF.: 20, pp. 247)	Europe America	Universities	"Graduate programs are developed by the universities to carry on specialization to still higher levels. A well-qualified graduate of one of the four-year programs could now engage in graduate study in a particular field of scientific inquiry."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Psychological Order of Learning	1825 A.D. (REF.: 23, pp. 323-326)	Switzerland	Pestalozzie	Learning can only progress insofar as the development of the mind has progressed. The suitability of any lesson is its potential to awaken the creativity of the learner. This 'order of learning' increased the teacher's awareness of the pupils' potential.
Student Government	1830 A.D.	Rugby, England	Thomas Arnold	Arnold entrusted government of the school, as far as possible, to the older pupils. This was done to facilitate better pupil-teacher relationships.
Schools for Cripples	1832 A.D. (REF.: 19, pp. 116; 7, pp. 230)	Munich, Germany	Mr. Kurtz	"Made the first attempt to educate cripples in specially adapted schools." "Mr. Kurtz's plan was to give crippled children a specially good education and an opportunity to learn a trade to "earn a livelihood."
Free Primary Schooling for Poor Children; under a state system of primary schools	1833 A.D. (REF.; 25, pp. 354)	France	Guizot, Minister of Public Instruction	France already had an organized secondary school system; a primary level system was introduced to increase literacy and make better use of the secondary school system.
School for Feebleminded - Mental Defective	1837 A.D. (REF.: 6, pp. 276; 19, pp. 119)	France	Edouard Seguin	"The year 1837 when Seguin began his work, marks the real beginning of systematic rational training of mental defectives, which has gone on without interruption from that day to this." (NOTE: "The first school was opened at Salzburg, Austria, in 1816 but was closed in 1835 without having been much of a success." Opened by Gotthard Guggenmoss.)

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Kindergarten	1837 A.D. (REF.: 15, pp. 515; 12, pp. 126-131)	Blankenburg, Germany	Froebel	"This was a school ... which did not have preparation for later schooling as its chief purpose. The kindergarten was a place in which children could grow, develop, and learn in an entirely natural way."
Formal Steps in Teaching - Learning as Apperception	1838 A.D. (date of first Normal School in America (REF.: 20, pp. 240, 245; 2, pp. 92)	Germany, America	Followers of Johann Frederick Herbart	"This five-step teaching process ultimately came to be very widely used in American elementary schools. Many of the earliest classes for teachers and virtually all the American normal schools were established to train teachers to use this or a similar methodology."
Division of School Day	1840 A.D. (REF.: 20, pp. 249)	America, Germany	Followers of Johann Frederick Herbart	Importance placed on the five-step lesson or teaching pattern "brought about the division of the school day into a series of teaching periods. Each period was given over to the teaching of a particular subject matter." The length of the periods depended on "subject matter and the age of the pupils."
First Notable Educational Tests	1845 A.D. (REF.: 5, pp. 22)	Boston	Boston Schools	"Instituted ... as substitutes for oral tests when enrolments became so large that the school committee could no longer examine all pupils orally."
Apprentice System of Teacher Training	1846 A.D. (REF.: 25, pp. 320)	England	Voluntary Societies	Large numbers of pupils had made individualized instruction impractical; apprentice teachers were one attempt to solve this problem.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
A Government "Department of Education"	1856 A.D. (REF.: 25, pp. 342)	England	James kay-Shuttleworth	This department examined where, why and how government funds were being spent on education; it systematized such spending.
Kindergarten for Blind	1861 A.D. (REF.: 19, pp. 116)	Moritzbura, Germany	Voluntary Society	Special care was needed for the caring of blind children in their early years; the Moritzburg kindergarten attempted to meet this need.
Land Grant Colleges	1862 A.D. (REF.: 23, pp. 280)	U.S.A.	Congress, at the urging of John Turner	Land was granted by congress for the setting up of colleges to study agriculture and the mechanical arts, particularly mining. This was done to keep agriculture and the mechanical arts abreast of modern developments.
Scheme for Selecting Curriculum	After 1862 (REF.: 20, pp. 248)	New York	Spencer	"The answer to the question of what subject matter should be taught is found in its usefulness ... Spencer's line of thinking quickly gained influence among the new schools."
First Objective Educational Tests - Objective Measures of Achievement	1864 A.D. (REF.: 5, pp. 22)	England	Reverend George Fisher	His "scale books, used in the Greenwich Hospital School ... provided means for evaluating accomplishments in handwriting, spelling, mathematics, grammar and composition, and several other subjects. Specimens of pupil work were compared with 'standard specimens'."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Manual Training	1866 A.D. (REF.: 23, pp. 293)	Finland	Uno Cygneaus	It was developed as a more efficient means of training personnel for a specific function.
Teacher's Union	1870 A.D. (REF.: 22, pp. 145)	England	National Union of Elementary Teachers	The first effective national non-denominational teacher's organization.
School Boards - Districts	1870 A.D. (REF.: 25, pp. 343)	England	Gladstone, Liberal Party	Elementary education was now established as a social right of all children whether or not their parents could pay. School boards were established to administer elementary education at a local level.
Correspondence Course	1871 A.D. (REF.: 24, Vol. 26, pp. 49)	Chautaugua, New York	Methodists	It was realized not everyone could go to a place of instruction, hence some Methodists resolved this problem by correspondence instruction. Business and commercial schools were quick to make use of the invention.
Mental Tests - Forerunners of I.Q.	1895 A.D. (REF.: 2, pp. 138; 5, pp. 23, 24)	France	Binet and Henri	"Binet and Henri described tests of memory, imagination, attention, comprehension, suggestibility, and esthetic appreciation that were forerunners of the Binet-Simon scales of the Twentieth century."
Experimental Schools	1896 A.D. (REF.: 23, pp. 400)	Chicago	Dewey	Called the 'University Laboratory School' it was established to develop a model school by experimentation with different educational and instructional methods.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Project Method of Learning	1896 A.D. (REF.: 23, pp. 401)	Chicago	Dewey	Students were given raw material and encouraged to learn through 'projects' which stressed 'self-education'. This invention enabled the teacher to spend more time with individuals who needed guidance rather than those who could progress on their own.
Municipal Control of Elementary and Secondary Education	1902 A.D. (Balfour Act) (REF.: 25, pp. 373-374)	England	Conservative party	The Tories felt pressured by the economic and social burdens of state secular schools. As well, there was growing demand from the municipalities for a greater say in educational affairs.
Individual Intelligence Test	1905 A.D. (REF.: 8, pp. 43)	France	Binet and Simon	"Binet and Simon brought out the first intelligence scale in 1905, devising it primarily for the purpose of selecting mentally retarded pupils who required special instruction."
Montessori School - House of Childhood	6th January, 1907 A.D. (REF.: 16, pp. 281-282; 13, pp. 56, 43)	Rome	Maria Montessori	
Standardized Achievement Test	1908 A.D. (REF.: 8, pp. 45-46)	New York	Stone	"Stone, a student of Thorndike's published his arithmetic reasoning test, the first standardized instrument to make its appearance in 1908."
Junior High School	1909 A.D. (REF.: 19, pp. 95)	Berkley	Educators	"The aim was to hold more pupils in school and to make vocational provisions for those going to work."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Guidance Counselor - Teacher	1909 A.D. (REF.: 20, pp. 278; 4, pp. 645)	Boston	Dr. Frank Parsons	"As differentiated curricula were introduced to prepare students for specific adult callings, it became increasingly necessary to help each pupil to find the particular program best suited to his needs."
Junior College	1910 A.D. (REF.: 19, pp. 96)	Fresno, California	California Legislature (Law passed 1907)	"A. Great increase of students desiring and deserving education beyond the high school. B. Overcrowding of many colleges. C. Need for better instruction in early college grades. D. Demand for facilities of higher education nearer the homes ... E. Changing conceptions of the functions of secondary and collegiate education."
Informal Objective Examination	1920 A.D. (REF.: 8, pp. 47-48)	Chicago	McCall	"First suggested that teachers did not need to depend solely upon standardized tests but that they could construct their own objective tests for classroom use."
Unit System - Unit of work - Teaching Unit - Fused Courses	After W.W.I. (REF.: 20, pp. 250)	America	Curriculum Makers	"The work of each day within a given subject matter area is related to the central topic of the unit as a whole and, through the unit topic, to every other assignment in the unit... When correlation is attempted between subjects...the educators...speak of correlated units, cooperative units, and fused courses."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Modified Programs - for Slow Learner and Gifted	After W.W.I REF.: 20, pp. 277, 298)	America	Research workers	Because of the research into the differences in individual performances, "modified programs of study...were developed for the slow learner, just as programs...were provided for gifted."
Real Life Needs	Before W.W.II REF.: 20, pp.276)	America	Curriculum	"Attention was therefore focused upon real-life needs of pupils and the stimuli isolated for presentation in the classroom came more and more to be those which are encountered outside the school."
'Child-activity' Programs	1945 A.D. (REF.: 25, pp. 400)	France	State schools	Instituted in French secondary schools these 'activity programs' paid special attention to the growth and development of the child. By freeing the child from rigidly structured programs, it was hoped the child's creative talents and ability would be better able to surface.
Teacher Aides	1953 A.D. (REF.: 14, pp. 64)	Bay City, Michigan	Charles B. Park	"Casting about for a way out of the dilemma of having too few teachers and too few classrooms to handle his growing school enrollment, he decided... Bay City would bring non-professional local people into schools...to take over the overburdened teacher's routine work."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Abolition of Racially Segregated Schools	1954 A.D. (May 17) (REF.: 25, pp. 459)	Washington, D.C.	Supreme Court	"Segregation...in and of itself produced inequality" the doctrine of 'separate but equal' was overturned and education in America moved forward for all citizens."
Intern Teaching	1952 A.D. (REF.: 14, pp. 162-163)	Harvard	Graduate School of Education	"Purpose of the plan - to stimulate outstanding liberal arts graduates to enter the teaching profession." They began teaching immediately under the supervision of master teachers.
Television in Classroom - Teaching through Television	1956 A.D. (REF.: 14, pp. 81)	Washington County Md	School Administrators, Teachers	"The adoption of closed circuit television occurred eight long years after Washington County school administrators and teachers began to re-examine and revise curriculum."
T.V. College	1956 A.D. (REF.: 26, pp.3)	Chicago	Chicago Board of Education	Credited college courses were offered on open circuit T.V. without compromising course objectives or quality. It made accredited college more accessible to the public and helped alleviate the 'crowded classroom' problem that universities experience.
Programed Instruction - Teaching Machines	1957 A.D. (REF.: 11, pp. 652)	Harvard University	B.F. Skinner	"Programing was first employed on a regular basis in 1957 at Harvard University as a part of B.F. Skinner's 'The Analysis of Behaviour', a course designed to teach many of the behavioral principles on which programed instruction is founded. (NOTE: First teaching machines developed in 1915 at Ohio State University by Pressey, though were not used until after Skinner began experiments. (Ref.: 17, pp. 1018)

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Team Teaching	1957 A.D. (REF.: 11, pp. 12-13, 20)	Lexington's Franklin School, Mass.	S.U.P.R.A.D., A Program set up by Harvard Graduate School of Education	"The Lexington experiment stems in part from a proposal made to the Fund for the Advancement of Education in April, 1956 by Dean Francis Keppel of Harvard's Graduate School of Education. It is a relentlessly analytical look at some of the inadequacies of American education."
Total Upgraded Primary School System	1957 A.D. (REF.: 14, pp. 40)	Appleton, Wisconsin	Teachers	As a result of dissatisfaction with the graded system, the upgraded system was considered in 1951. That September it was brought into one school with first year students. Next year it was extended to the "beginning primary students at all schools. In 1957-58 the program was adopted throughout the elementary schools."
Computerized Education	1960 A.D. (REF.: 1, pp. 201; 18, pp. 196-8)	University of Illinois	Researchers Coordinated Science Laboratory	"In considering various possible automatic teaching devices, it seemed clear from the outset that the greatest promise lay in the idea of an automatic teaching system organized around a large, high-speed, general purpose, digital computer..."
Open Admissions; i.e., anyone could take courses, regardless of educational background.	1969 A.D. (REF.: D.G. Hawkridge, Director, Institute of Educational Technology, The Open University, Milton Keynes, England)	London, England	Open University	The open university 'teaches at a distance' by using printed texts sent by mail, radio and television broadcasts. As well, regional study-resource centers were set up. The student could proceed at his own pace; this innovation made education available to large numbers of people who otherwise would not have the chance to proceed further in their education.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Rural Family Development Project (RFD)	1969 A.D.	Wisconsin, U.S.A.	University of Wisconsin, Extension Division	RFD was a project aimed at rural adult basic education through the use of radio and television; it was a home study program designed to meet basic needs, ex. "how to cook inexpensive and nutritious meals."
	(REF.: University of Wisconsin, Extension Division)			
'Racial Balancing' of Classrooms	1969 A.D.	U.S.A.	Supreme Court	Bussing of children to schools was one method used in attempting to desegregate U.S. Schools. It assured that black and white children in America attended the same schools and received the same instruction.
	(REF.: 25, pp. 461)			

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SOCIAL SERVICE INVENTIONS

INVENTION	WHEN	WHERE	WHO	WHY
Indenture	3500 B.C. (REF.: 10, p. 475)	Sumer	Sumerians	"A bankrupt might himself be enslaved for debts or ... might sell his wife, his son or his daughter into slavery so as to acquire capital to pay off his debts, or might simply hand them over as payment to his creditor." Servitude only temporary, regulated by law.
Welfare - Charity	2100 B.C. (REF.: 5, p. 137-8; 10, p. 625)	Egypt	Egyptian Rulers	From the walls of tombs, examples of rulers giving things to poor. Egyptian farmers given seed in event of a crop failure.
Adoption	1800 B.C. (REF.: 28, p. 171)	Sumer	Sumerians	"A child might be adopted by a childless couple as their own heir and legislation for such a situation is found in ancient law codes..."
Monastic Orders Charity	350 A.D. (REF.: 9, p. 4)	Europe	Priests	"Monastic orders gave food, clothing, shelter and relief to the poor. No state stepped in to define these relations although a feudalistic society had long since been molded in the pattern of a mutual dependency."
Prohibition of medicancy and giving alms to the poor	800 A.D. (REF.: 22, p. 10)	Holy Roman Empire	Charlemagne	It was hoped such prohibitions would force serfs and other rural laborers to stay on the manors, protect the public against vagrants, beggars, etc.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Compulsory use of tithes to aid the poor	1014 A.D. (REF.: 23, p. 17)	England	King Ethelred	"The King and his witan (counsel) have chosen and decreed, as is just, that one third part of the tithe which belongs to the church go ... to God's poor and needy ones ..." Ethelred wished to alleviate poverty.
Ordinance of labourers - First Regulation	1349 A.D. (REF.: 13, p. 3-4; 22, p. 13)	England	Parliament	"After the Black Death of 1348-9, Labourers were scarce and wages rose rapidly; a series of enactments was therefore passed designed to force every able-bodied man to work, and to keep wages at the old level. It is provided that no one is to give relief to able-bodied beggars ..." Vagrants and the able-bodied poor had to accept employment from anyone willing to hire them.
'First' Poor Law	1388 A.D. (REF.: 13, p. 4-5)	England	Parliament	"In 1388, therefore, regulations were made, restricting the movements, not only of able-bodied beggars, but of all beggars and all labourers and..., admitting the right to relief of those who were unable to work for themselves." Probably had little effect - too stringent to have been enforced.
Hospital - Almshouse - Orphanage - Training Home	1520 A.D. (REF.: 13, p. 19)	London	Church	"The term hospital was by no means confined to institutions for relieving the sick, but almshouses, orphanages and training homes were often called by this name. St. Thomas's Hospital may be taken as a typical institution of the kind."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
The "Common Chest"	1523 A.D. (REF.: 23, p. 36-37)	Leisnig, Saxony	Martin Luther	The "Common Chest" was a collection and source of fund used to pay church officials, schoolmasters and the cost of relief. Expenditure was administered by ten supervisors chosen in an open meeting.
City administered system of relief	1525 A.D. (REF.: 23, p. 33-34)	Ypres	Governors of Ypres	The City sought to coordinate and organize relief work under its own auspices in order to deal with poverty problems more effectively. City appointed officials attempted to provide the poor with food and clothing so that no one would need to beg. Public donations and grants were used to finance the program.
Organized distribution of money, food, clothing, etc., to the poor.	1525 A.D. (REF.: 22, p. 11)	Zurich, Switzerland	Ulrich Zwingli	Christians viewed aiding the poor as a religious duty and, in Zurich, it was hoped to eliminate begging and make provisions for the poor.
Licensing of begging	1531 A.D. (REF.: 22, p. 15)	England	King Henry VIII	Mayors and justices of the peace were to investigate applications of the aged and paupers unable to work; they were to be registered and licensed to beg in an assigned area.
Law to repress begging	1536 A.D.	England	Parliament	The breakup of feudalism and "The dissolution of the monasteries made apparent a tremendous amount of poverty...In 1536 Parliament passed a law decreeing that alms were to be collected by the churches each Sunday and that local authorities were to help relieve the impotent and sick

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 9, p. 5)			poor. Begging and beggars were to be discouraged; vagrant beggars were to be returned to their own settlements, hastened...if need be by flogging and even mutilation."
Public relief under the auspices of government	1536 A.D. (REF.: 22, p. 15)	England	Parliament and Henry VIII	With the confiscation of church property by Henry VIII it became necessary to make other provisions for the care of the poor. The parishes had to maintain the "impotent poor" from voluntary contributions; able-bodied beggars were forced to work; idle children (5-14) yrs. were taken from their parents and indentured. The government put some money into the programs.
First paid public welfare official	1536 A.D. (Poor Law) (REF.: 23, p. 24)	England	Persons appointed by the crown	The Law of 1536 "calls for the recording of funds secured, expended and/or the making of an accounting..." of relief money. The collectors were compensated (paid) for their work.
Registration of the poor	1536 A.D.	France	King Francis I	Relief was provided only to the registered poor; the registration was an attempt to better organize France's relief work.
Labor-wage regulation	1562 A.D. (Statute of Artificers) (REF.: 22, p. 16)	England	Parliament under Elizabeth I	The State regulated wages and hours of labor, and sought to increase the skill of artisans by an apprentice system; vagrants and vagabonds were forced to hard labor; the other unemployed were hired out as servants.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Compulsory measures to finance parish poor relief	1563 A.D. (REF.: 22, p. 16)	England	Parliament under Elizabeth I	Voluntary support was insufficient for poor relief-unemployment, vagrancy and begging were increasing; thus each householder was compelled by law to make a weekly contribution, based on income and property, to finance parish poor relief.
Wage 'controllers'	1563 A.D. (REF.: 23, p. 71-72)	England	Parliament under Elizabeth I	Justices of the peace were empowered to "limit, rate, and appoint wages...": This law was one of the first in government economic controls.
Government agency to over-see poor relief	1572 A.D. (REF.: 22, p. 16)	England	Parliament under Elizabeth I	A new law introduced a general tax to provide funds for poor relief; overseers were appointed to administer the new program; government was becoming more involved in relief work.
Houses of Correction	1576 A.D. (REF.: 9, p. 5-6, 22, p. 16)	England	Justices	"The justices of each county were empowered to secure by purchase or lease the building to be used as houses of correction. Here materials for work were to be provided for the unemployed to the end that work habits might be instilled, and relief be administered on a quid pro quo basis." The able-bodied poor were forced to accept work in such houses; mainly they produced textile products.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Elizabethan Poor Law - Aid by 'parishes' - "Basis of poor relief in England and America for over 200 years."	1601 A.D. (REF.: 9, p. 6; 15, p. 1446; 11, p. 768B; 4, p. 133-36, 22, p. 16-17)	England	Parliament	The Act of 1601...established three categories of relief recipients...For the able-bodied poor, employment was to be provided under threat of a session in jail or in the stocks for refusal to work. The almshouse was to be the sanctuary of the second group, the unemployables; while children...were to be apprenticed...For the execution of these legal provisions, a tax was to be levied in the parish upon lands, houses, and tithes, which was supplemented by private charitable bequests of land or money, and by the use of fines for violation of certain laws. The law confirmed the responsibility of local communities for the poor who were not supported by their relatives.
Law of Charitable Uses - Philanthropic Giving	1601 A.D. (REF.: 4, p. 137; 15, p. 1446; 12, p. 1462)	England	Parliament	"Parliament desired to maintain and strengthen the older voluntary system of charity in order that it might work concurrently with the newer organization now growing up."
Indenture for Children	1601 A.D. (REF.: 9, p. 61)	England	Parliament	The system of indenture by which a child was bound over to another person or family was a pronounced development following 1601...
Order of Good Cheer	Winter 1604-1605 A.D.	Port Royal, Quebec	Samuel de Champlain	"Curing scurvy and boredom by banquets...the first theatrical performance in Canada..." the Order was a group effort by settlers to form a real community, survive the winter, and through the "first social club" in America, see to each other's welfare.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Houses of Correction in every county - workhouses as jails	1609-1610 A.D. (REF.: 4, p. 137)	England	Parliament	"The new enactment of 1609-1610 therefore provided that one or more Houses of Correction must be erected within every county...This therefore probably marked the time when Houses of Correction ceased to be half workhouses and became very much more like jails."
The first 'social workers'	1633 A.D. (REF.: 22, p. 13)	France	Father Vincent de Paul	Young women were trained in the nursing of the poor and seeing to their personal needs; charitable work became their vocation.
Settlement Law of 1662 - Eligibility for aid	1662 A.D. (REF.: 15, p. 1446; 9, p. 6-7; 22, p. 16)	England	Parliament under Charles II	Parliament "established a minimum period of residence before a person would become legally settled in a parish. Until this period (usually a year) had elapsed, a needy person would be refused aid and forced to return to the parish where he had settlement rights. "Labor mobility, as a result, was severely restricted."
Contractual Workhouses	1696 A.D. (REF.: 22, p. 19-20)	England	Parliament under George III	The unemployed and paupers were put to work in workhouses on contract to manufactures; relief was refused to anyone refusing to enter a workhouse; the system failed as the poor were not skilled laborers and working conditions were deplorable.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Workhouse Test	1697 A.D. (REF.: 9, p. 7)	England	Parliament	Parishes were permitted to join forces for the purpose of establishing workhouses in which the poor might be lodged and worked. To refuse to work, however, resulted in court dismissal and a denial of relief.
Farming out poor	1697 A.D. (REF.: 9, p. 7)	England	Parliament	"Parishes were permitted to 'farm out' the poor on contract. This amounted, in essence, to an invitation to the lowest private bidder to exploit human labour to the utmost..." In 1782 Parliament abolished 'farming out'.
Organized System of Private Charity	1711 A.D. (REF.: 9, p. 13)	Hamburg	City Government	A central bureau was established to supervise all the work among the poor and to bring together all charitable agencies under one management."
Prohibition of sale of liquors in prison.	1728 A.D. (REF.: 22, p. 29)	England	Oglethorpe	A committee of inquiry, with Oglethorpe as chairman, sparked this reform in prisons, liquor was causing much trouble in prisons; however, the idea of a prison was still as an institute of vengence.
School for deaf-mute children	1760 A.D. (REF.: 22, p. 81)	Paris	Abbe Charles de l'Epee	The treatment of deaf-mutes as idiots, to be placed in poor houses, was inadequate and inhumane. Abbe Charles de l'Epee founded a school to help deaf-mutes come to terms with the world around them and contribute positively to society.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Registration of infants in work-houses	1761 A.D. (REF.: 23, p. 65)	England	Jonas Hanway	Hanway, a philanthropist and reformer, expressed concern about infant mortality in Britain. The registration of births in workhouses provided data on the subject.
Removal of infants from work-houses	1767 A.D. (REF.: 23, p. 65)	England	Jonas Hanway	All children under six years of age were removed from workhouses to the country because of the fantastically high infant mortality rate in workhouses; (as high as 82%) and often placed in foster homes.
Hospital for the mentally ill	1773 A.D. (REF.: 22, p. 75)	Williams-burg, Virginia	Thomas Eddy	This hospital care exclusively for the mentally ill, saw its purpose in terms of treatment of the mentally ill rather than simply incarceration.
Department of Indian Affairs	1775 A.D. (REF.: 22, p. 100)	U.S.A.	The Continental Congress	"In order to improve the relations with the Indian tribes and to protect their lands against seizure without treaty." Reorganized in 1789 (under the War Department), it saw to the establishment of schools for Indian Children and the provision of some medical cares.
Improved diet and environment in prison	1777 A.D. (REF.: 22, p. 31)	England	John Howard	Howard studied prison conditions throughout Europe and pioneered individual work with inmates; he instigated the 1777 prison reforms which included better food, ventilation, cleaning cells, proper bedding and medical care to prisoners.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Abolition of Compulsory contracting out of poor	1782 A.D. (REF.: 23, p. 67)	England	Thomas Gilbert	Contracting for the 'care' of the poor was abolished and the apparatus set up to allow parish to form unions for the operation of relief programs in common.
"Guardians of the Poor"	1782 A.D. (REF.: 22, p. 20)	England	Thomas Gilbert	The workhouse system was abandoned and there was provision of relief for people, ready, able and willing to work, in their own homes. This program was administered by the "Guardians".
School for blind children	1784 A.D. (REF.: 22, p. 79)	Paris	Valentin Hawy	Hawy realized that blindness was no reason to spend one's life as a pauper or in an almshouse; properly educated they too, could make a contribution to society.
Municipal system of poor relief	1788 A.D. (REF.: 22, p. 12; 23, p. 91)	Hamburg	Professor Busch	To make relief work more efficient and economic, Hamburg was divided into sixty quarters, each quarter served by a three-man committee who inquired into the problems of the poor and determined their needs. Financing was by taxation and donation.
Comprehensive municipal relief	October 1788 A.D. (REF.: 23, p. 91)	Hamburg	Kaspar von Voght	Voght sought to alleviate poverty by providing the necessities of life (food, clothing, shelter) to all the poor, seeking employment for them, etc. Each poor family had regular visitations from an 'overseer' who saw to their needs and wants. Voght's program was more comprehensive than Bush's.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Unemployment Insurance Plan	1789 A.D. (REF.: 6, p. 762)	Switzerland	Baseltown	"Group action to protect workers against the hazards of industrial life began as early as 1789, when Baseltown in Switzerland established an unemployment plan."
Public Employment Agency (as part of a relief system)	January 1790 A.D. (REF.: 23, p. 94-98)	Munich	Benjamin Thompson, Count of Rumford.	Employment was viewed as a key step in helping people out of poverty and making them self-supporting. The concept of a public employment agency was more fully developed and implemented in Bavaria than elsewhere.
Classification of prisoners according to offence	1790 A.D. (REF.: 22, p. 85)	Pennsylvania, U.S.A.	State Legislature	"The new method meant a classification of prisoners according to the nature of their offence; it was a step toward differentiation of treatment and rehabilitation... more humane and less corporal punishments were exercised." prisoners still spent most of their time in solitary confinement.
The Military Workhouse	1790 A.D. (REF.: 22, p. 12)	Munich	Benjamin Thompson, Count of Rumford	Thompson did not wish to see able-bodied people begging, so he recruited them for workhouses where they, their families, and other destitutes were given decent lodging and meals. The 'house' manufactured clothing for the army. In this type of workhouse, families were not broken up, but remained together as a unit maintaining the semblance of family life.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
"New" mental hospital	1793 A.D. (REF.: 24, p. 45)	Bicetre, France	Philippe Pinel	The 'new' mental hospital demonstrated its value therapeutically, and the safety of removing all forms of physical coercion in mental hospitals.
Relief allowances according to size of family and income	1795 A.D. (REF.: 22, p. 21)	England	Parliament under George III	War with France was causing inflation, increased poverty and suffering; the act authorized relief allowances to the poor according to the size of family either for support or to supplement low wages; employers were quick to use this act as an excuse to lower wages even further.
Prohibition of trade unions	1799-1800 A.D. (Combination Laws) (REF.: 22, p. 32)	England	Parliament	Employers felt trade unions would be damaging to their (management) concerns by driving up wages and forcing an improvement of working conditions.
Dispensaries for Out-Patient Treatment	1800 A.D. (REF.: 15, p. 1448)	America	Franklin	"By the end of the eighteenth century a number of cities had hospitals and, again with Franklin's support, dispensaries for the out-patient treatment of illness began to appear."
Limitation of working hours for children	1802 A.D. (REF.: 22, p. 28)	England	Sir Robert Peel	Children, leased out from poor houses, were being literally worked to death under deplorable conditions in labor camps at textile mills. Peel restricted the working hours to 12 per day and forbade night-work for children. This early protection of child labor did not extend to children hired directly from their parents.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Minimum standards of hygiene and education for child-laborers	1802 A.D. (REF.: 24, p. 160)	England	Peel, at the urging of Dr. Thomas Percival	The Health and Morals Act of 1802 was passed to prevent the exploitation of children. It limited their hours of work (see above) and prescribed minimum standards of hygiene and education.
Labour Legislation - Factory Acts	1802 A.D. (REF.: 4, p. 39-40, 60)	England	Sir Robert Peel	The first factory act was to protect apprentice labour. "The act had little effect for powers of enforcement were lacking... but its significance lies in its revelation both of the depths to which the Elizabethan concern for the training of the young had sunk under new conditions and the coming of a new attitude,..."
Abolition of the slave trade	1807 A.D. (REF.: 26, p. 826, 851)	"throughout the British Empire"	Parliament	Religious and secular reformers saw such action as a step towards recognizing the university of humanity; humanitarian grounds.
School for Children in prison	1810 A.D. date not precise (REF.: 22, p. 31)	Newgate prison, England	Elizabeth Fry	Fry was deeply concerned about the welfare of prison inmates. She set up a school for children in Newgate prison, employed women convicts as teachers, and urged other reforms to improve more and make prison life more humane.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Individualized "case work" among the poor	1814 A.D. (REF.: p. 23)	Glasgow, Scotland	Rev. Thomas Chalmers	Chalmers felt the prevalent practice of public and church relief was wasteful, demoralized the poor and destroyed their will to support themselves. He felt each case of distress should be carefully investigated to determine the causes and possibilities for alleviation. Chalmer's concept that a personal interest in the fate of the destitute was important to the progress of relief work.
Scientific Research into Poverty	1817 A.D. (REF.: 22, p. 88)	New York	Concerned citizens	The New York Society for the Prevention of Pauperism aimed to determine the causes of poverty scientifically. Also, means of rehabilitation were developed instead of the mere palliative of financial relief.
Medical Inspection of Immigrants	1819 A.D. (Passenger Act) (REF.: 22, p. 102-103)	U.S.A.	Congress	The Passenger Act required the medical inspection of all arriving immigrants as a preventative health measure against the spread of disease.
Residential school for the deaf	1823 A.D. (REF.: 22, p. 81)	Danville, Kentucky	State sponsored	The public was becoming increasingly aware of the plight of the deaf; the state of Kentucky sponsored the establishment of a residential school for the deaf.
Legalization of trade unions	1824 A.D. (REF.: 22, p. 32)	England	Sir Francis Place	Place felt the repression of trade unions could only, in the long run, cause more unrest than it prevented. As well he viewed the Combination Laws of 1799-1800 which prohibited trade union as specifically oppressing a segment of society (labor).

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Inspectors in Factories - Act of 1833	1833 A.D. (REF.: 4, p. 62)	England	Parliament	"Inspectors were appointed to see that the law was obeyed, and, although at first they were very few in number and their powers were narrowly restricted their influence was to tell strongly, as the years passed, in favour of improved conditions."
Abolition of Slavery	1833 A.D. (REF.: 26, p. 607)	In all British possessions	Parliament	This act was the culmination of the campaign fought by the abolitionists, led by William Wilberforce; there was immediate emancipation for children under 6 years of age, a period of apprenticeship for those over 6; compensation was paid to slave holders.
Seamen's Aid Society	1833 A.D. (REF.: 22, p. 89)	Boston	Sarah J.Hale	"The Seamen's Aid Society of Boston procured work for wives and widows of seamen... and fought a campaign under the leadership of Sarah J. Hale for decent wages for women workers to protect them from pauperism."
Regulation of Child Labor; re: employment and hour	1833 A.D. (Factory Act) (REF.: 22, p. 28)	England	Peel, Saddler, Cooper, Owen, et al.	There was a growing demand for the protection of children against overwork and mistreatment; this act prohibited the employment of children nine years of age in textile mills and further limited daily working hours for children.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Paid, permanent, qualified local personnel for relief administration	1834 A.D. (REF.: 23, p. 125)	England	Parliament	Relief measures and organizations in England had failed miserably and the condition of the destitute steadily worsened. National supervision of relief schemes and the use of qualified personnel to administer them had to replace existing chaotic adhoc measures.
"Less Eligibility"	1834 A.D. (REF.: 22, p. 24, 25)	England	Nassau W. Senior	The principle of "less eligibility" meant that poor relief was granted to the destitute in such meager amounts that its receipt put the poor in a condition less desirable than the lowest paid laborer in the community; the scheme was designed to force the poor to accept any type of labor rather than ask for public support.
"Poor Law Unions"	1834 A.D. (REF.: 22, p. 24)	England	Parliament	"Poor law unions" allowed the establishment of a central board of control to coordinate the administration of relief programs of several parishes in one program; able-bodied applicants for relief were forced into the workhouse.
School for the Retarded	1837 A.D. (REF.: 22, p. 78)	Paris	Dr. Edouward Seguin	Seguin felt the feeble-minded, although severely limited, could be educated or taught simple vocational skills to such a degree that their lives would be more worthwhile.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Parole	1837 A.D. (REF.: 22, p. 468)	Australia	State sponsored	Often it was felt no further good was to be achieved by keeping a prisoner in jail; a parole allowed the prisoner to re-enter the community subject to supervision and certain conditions (e.g.: abstinence from alcohol); violation of parole meant return to prison.
Free Public Vaccinations	1840 A.D. (REF.: 22, p. 26)	England	Edwin Chadwick	There was widespread prevalence of disease among the destitute caused mainly by poor environment; due to Chadwick's insistence free public vaccinations against cholera, typhus and smallpox as well as improved sanitary conditions for water systems were implemented.
State funds specifically for care of the blind	1840 A.D. (REF.: 22, p. 80)	Indiana, U.S.A.	Legislative	Indiana was "the first state to enact special legislation for the financial maintenance... of the indigent blind"; blindness was recognized as a handicap requiring special attention.
Probation	1841 A.D. (REF.: 9, p. 218)	Boston	John Augustus	"As early as 1841 a Boston shoemaker, John Augustus, had begun as a sort of volunteer probation officer... In 1878, ...adult probation was undertaken officially in Boston and within two years the authorization was state wide."
Slum Clearance (MAIDIC)	1842 A.D. (REF.: 22, p. 35)	London, England	Edwin Chadwick	Slum clearance was undertaken to avoid the danger of cholera and typhus epidemics. The Metropolitan Association for Improving the Dwellings of the Industrious Class (MAIDIC) was formed in 1842 to further this and other housing reform.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Young Men's Christian Association (YMCA)	1844 A.D. (REF.: 22, p. 95)	London, England	George Williams	"Improvement of the spiritual and mental conditions of young men... living quarters at a low price with decent sanitary facilities, particularly for young men...who could not afford to pay room and board..." Williams attempted to bring young men back to a Christian way of life; convinced that the Christian way of life, ethics and morality would benefit them and society.
Cooperative Store	1844 A.D. (REF.: 22, p. 33; 23, p. 170)	Rochdale, England	The Chartists	Consumer cooperation was assumed to be one way of effectively lowering prices; co-op store dividends were divided among store shareholders; the Co-op movement is still active today.
Outdoor Relief Prohibitory Order	Dec. 2 , 1844 A.D. (REF.: 23, p. 134, 135, 136)	England	Parliament	No able-bodied person outside a workhouse could receive relief; anyone desiring relief had to enter a workhouse. It was hoped to make receiving relief so distasteful that the poor would be reluctant to accept it.
Reform school (for boys)	1846 A.D. (REF.: 24, p. 61)	Massachusetts, U.S.A.	Legislature	Juveniles were treated differently from adult criminals (although not formally until 1899) and placed in reform schools rather than prisons. A similar scheme was set up for girls in 1854.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Legal Protection for Delinquent Children	1847 A.D. (REF.: 22, p. 32)	England	Parliament	The Juvenile Offenders Act limited the criminal prosecution of children under 14 years of age and was the first real recognition that, in law, children were not responsible adults.
General Board of Health	1848 A.D. (REF.: 22, p. 26)	England	Parliament, at the urging of Edwin Chadwick	The board co-ordinated and supported the efforts of local authorities in the fight against epidemics, improvement of housing conditions, and the establishment of sanitation facilities.
Street gang social work	1848 A.D. (REF.: G-1487)	U.S.A.	Churchmen and Charity workers	As adolescent group delinquicy increased with urbanization "churchmen and charity workers sought... to contact 'young roughs' through mission street work using 'boy's meetings' on street corners" in attempts to re-direct street gang activities in more positive directions.
Children's Aid Society	1853 A.D. (REF.: 14, p. 1449; 1, p. 779; 24, p. 57)	New York	Charles Loring Brace	"A variety of services were made available, including lodging houses, schools emphasizing useful arts, and reading rooms. The society's chief claim to fame was its effort to give city children the opportunity to grow up in rural homes."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Working Men's College	1854 A.D. (REF.: 23, p. 144)	London, East End	F. D. Maurice	The feeling of those in the College was "in the power of personal influence" to help the poor and laboring classes; it was felt the destitute would benefit from association with, and the advice of, those from a superior economic and cultural background.
Young Women's Christian Association (YWCA)	1855 A.D. (REF.: 22, p. 95; The World Book Encyclopedia, 1969 ed., Vol. 20, p. 477)	London, England	Emma Robarts	"They provided clean, low rent housing and a cultural center for girls and young women who...found it difficult to rent rooms in a decent neighborhood for prices they could afford to pay."
Jewish Community Centers	1855 A.D. (REF.: 27, p. 1551)	U.S.A.	Jewish community leaders	"Its purposes were secular-education, cultural, and recreational - to aid the youthful Jewish immigrant in his Americanization process and to compensate for the loss of community he had known in Europe."
"Boy's Club"	1860 A.D. (REF.: 22, p. 95)	Hartford, Connecticut	A church women's group	"To give young boys an opportunity to pursue games and sports, music, dancing and dramatic activity... rather than leaving them to the doubtful influences of city streets"; a sort of forerunner of the Boy Scouts.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
London Society for the Relief of Distress	Winter of 1860-1861 A.D. (REF.: 23, p. 141)	London, England	Concerned citizens	The Society was formed to meet cases of immediate distress that would otherwise have gone unseen because of the oppressive, bureaucratically cumbersome official system of relief.
Social Work in the Military	1861 A.D. (REF.: 27, p. 851, 852)	U.S.A.	Presidentially appointed persons	At first the main concern was the return of the soldier to active duty; gradually the U.S. Sanitary Commission began to extend psychiatric care as well as other forms of social services to military personnel.
New York Catholic Protectory	1863 A.D. (REF.: 24, p. 57)	New York, U.S.A.	Roman Catholic Church	The New York Catholic Protectory set up the apparatus for receiving children under 14 years of age for instruction and reformation; they dealt with truants, the homeless and emotionally disturbed. Children received care and, wherever possible, foster homes.
State Board of Charities	1863 A.D. (REF.: 22, p. 86)	Massachusetts, U.S.A.	State sponsored	The "increasing number of state institutions for the handicapped and delinquent in the nineteenth century created a chaotic state of administration...no uniform policy in principles of management, tenure of inmates, budgets, or personal standards..." the state board was to coordinate the actions of these 'institutions.'

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
'Low Rental Housing'	1864 A.D.	London	Octavia Hill	Slum dwellings were renovated for the purpose of renting them to families with low incomes; this was the first concerted effort at 'low rental' housing.
Training of Social Workers	1864 A.D. (REF.: 19, p. 53-54)	London, Southwark	Octavia Hill Margaret Sewell	"The first ideas about training social workers stemmed from several sources including the work of Octavia Hill who, beginning her plan of rent-collecting in 1864, soon found it necessary to delegate some of the work to others...At the same time, Margaret Sewell... began teaching her voluntary workers.
The Red Cross	1864 A.D. (REF.: The World Book Encyclopedia, 1969 ed., Vol. 16, p. 179)	Switzerland	Jean Henri Dumont	The Red Cross was formed as an international relief agency to provide aid to those in distress, particularly in times of war, regardless of national origin, color or creed.
American Social Science Association	1865 A.D. (REF.: 24, p. 3, 4, 5, 91)	U.S.A.	Social Scientists	The Association dealt largely with methodological approaches to relief problems rather than simply trying to meet problems with no theoretical framework. It played a major part in increasing the role of research in social work.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
'Householder's' Vote	1867 A.D. (REF.: 23, p. 170)	England	Parliament (Disraeli)	When owners and tenants got the vote, as a result of the rising power of labor and industry in politics, labor began to exert its force in many areas, including welfare reform.
Juvenile Probation Officer	1869 A.D. (REF.: 22, p. 87)	Massachusetts, U.S.A.	State sponsored	"A 'state visiting agent' was appointed to attend the trials of juvenile delinquents before the courts in order to assume care for the children who were not committed to reform schools. The state agent became a forerunner of the juvenile probation officer."
Charity Organization Society	1869 A.D. (REF.: 1, p. 777; 9, p. 15; 23, p. 151)	London	Octavia Hill, Edward Denison	The Society represented the first collectively organized relief efforts by a private charitable organization; it helped eliminate duplication of relief services and made private relief efforts more effective.
Municipal Socialism	1873-1875 A.D. (REF.: 23, p. 173)	Birmingham, England	Joseph Chamberlain	Chamberlain extended the concept of a government for service through building free libraries, art galleries, slum clearance and housing development, and municipal utilities in gas, water, electricity and sewage disposal. This 'municipal socialism' paved the way for government entry into many areas of civic service and needs.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Prevention of Cruelty to Children - Laws against cruelty to children	After 1875 A.D.	United States	Societies in a number of States	"In 1875, however, the New York Society for the prevention of Cruelty to Animals (S.P.C.A.) demonstrated that it was possible to prosecute parents for abuse of child by cruelty, beating, etc."
Classification of prisoners	1876 A.D. (REF.: 22, p. 85)	Elmira, New York	State sponsored	"It proved important to segregate young offenders from 'hard-boiled' criminalism. The (Elmira) reformitory was used for young convicts between sixteen and thirty years of age, and later, for older first offenders. Its main purpose was to prevent the 'habitual criminals' from infecting young offenders."
Legal Aid	1876 A.D. (REF.: 22, p. 363; 3, p. 897; 15, p. 1452)	New York	Arthur von Briesen	Von Briesen established the New York Legal Aid Society to aid immigrants who frequently were the victims of illegal activity (e.g., extortion, wages withheld, etc.); legal aid came to be extended to all. In Legal Aid's early history German citizens were particularly active.
National Prison Commission	1877 A.D. (Prison Act) (REF.: 22, p. 31)	England	Parliament	The administration of penal institutions was transferred to a central organization which could better organize and administrate matters of concern.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Professional Education for prison officials	1878 A.D.	U.S.A.	General Brinkerhoff (Internal Prison Congress)	Professional education, coupled with salaries to attract competent personnel, it was felt, would result in the more efficient and humane administration of the penal system.
First prison for Women	1879 A.D. (REF.: 22, p. 85-86)	Sherhorn, Massachusetts	State sponsored	This prison was established to avoid the vices rampant in prisons where women were not segregated from men. Other states were quick to follow.
Social Democratic Federation	1881 A.D. (REF.: 23, p. 173)	England	H.M. Hyndman	This small but aggressive federation was established to agitate for labor reform; it was active in strikes, unemployment and similar situations.
Foster Home Plan	1883 A.D. (REF.: 24, p. 60-61)	Chicago	Dr. F.M. Gregg	Rather than simply 'farming' children out as labor (as had been the practice in England) Gregg's plan was for the placement of dependent, neglected and abused children in homes with a suitable environment where the child would be cared for his own sake.
Sickness Insurance	1884 A.D. (REF.: 8, p. 43; 16, p. 617)	Germany	Bismark	Introduced to counter socialist agitation and was compulsory. "The contributions required to meet the cost of benefits were to be paid to the extent of two-thirds by the workers and one-third by the employer; a State subsidy was neither given nor asked for."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Settlement Movement	1884 A.D. (REF.: 7, p. 1175; 19, p. 64; 22, p. 38, 97, 98; 24, p. 112, 114)	Toynbee Hall East London	Samuel A. Barnett	"Barnett's idea was to have university men actually live in 'the worst parish in London.' Toynbee Hall, Barnett hoped, would help bridge this gap between rich and poor, between university men and working men, and that the two groups would learn from each other."
Formal teaching of social work	1885 A.D. (REF.: 24, p. 133-134)	Harvard University	Dr. F. G. Peabody	Called "Philosophy 11" Peabody offered students a course which bridged the gap between the teaching of and practising of social work by exposing the student to both.
Workmens' Compensation	1885 A.D. (REF.: 8, p. 41-43; 16, p. 617)	Germany	Bismark	"It was intended to apply only to some of the more dangerous industries and enterprises and to secure almost automatically to the work people employed therein pensions for injuries...pensions to their dependents in the event of fatality."
Remedial Loan Association	1886 A.D. (REF.: 24, p. 228)	Boston	Robert Paine	"The ills of excessive usary, whose charges ran to 360 percent and more a year, bore most heavily on the poorest, and Paine started the movement for making reasonably priced loans available...at one percent a month..." the Association helped the poor by making money available at rates that would not forever enslave them.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Old Age and Incapacity Pension Insurance	1889 A.D. (REF.: 4, p. 151; 8, p. 43-44; 16, p. 617)	Germany	Bismark	"The cost was equally divided between the workers and their employers, except that the State undertook to make a contribution to the pension given."
Paid-charity worker - Social worker	1890 A.D. (REF.: 19, p. 87, 54; 11, p. 770)	America England	Charities	"Brilliant young graduates of Harvard University made a career of charitable work; so also did men past middle age...Feminine tact and sympathy were prized in friendly visiting and many women who started as volunteers remained as paid charity workers."
Federal Control of Immigration	1890 A.D. (REF.: 24, p. 123-124)	U.S.A.	Congress	There was general consensus that some control should be placed upon who could enter the country: the purpose of such control was to prevent the entry of criminals, the insane, feeble-minded, and other 'undesirables'.
"Charities Review"; first social welfare publication	1891 A.D. (REF.: 22, p. 92)	New York	Social workers	"Charities Review" was the first magazine to publish public and reliable information on social and health conditions and on the activities of relief agencies and private societies; later it became known as "The Survey."
Pennsylvania Society for the Prevention of Tuberculosis	1892 A.D. (REF.: 27, p. 575-576)	Pennsylvania	L.F. Flick	It was the "first American association of lay and medical persons devoted to the conquest of a disease"; the society distributed information about tuberculosis and pushed for treatment and research measures to overcome it.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
"Nurses Settlements"	1893 A.D. (REF.: 22, p. 98; 24, p. 118-119)	New York (Henry Street Settlement)	Lillian D. Wald, Mary Brewster	This settlement provided professional nursing to the sick who could not afford to pay the salary of a nurse; there was a growing feeling one ought not to be deprived of health care for lack of money.
Psychoanalysis	1896 A.D. (REF.: 21, p. 721)	Vienna, Austria	Freud	"Freud,...made an alteration in their technique, by replacing hypnosis by the method of free association. He invented the term psychoanalysis,..."
Juvenile Courts	1899 A.D. (REF.: 24, p. 67, 169; 15, p. 1452; 1, p. 775-776)	Chicago, U.S.A.	Government	"These informal noncriminal courts could adjudge a child neglected and make him a ward of the state." Such courts were designed to keep minors out of the company of hardened criminals in prisons ('crime schools').
Full-scale School of Social Work	1899 A.D. (REF.: 11, p. 770)	Amsterdam	Institute for social work training	"That school offered a two-year course combining study of general sociological knowledge, socio-economic problems and legislation with supervised practical training in various fields of social work."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Social work in schools	1906 A.D. (REF.: 27, p. 1148)	U.S.A.	Private and civic agencies	"To provide a setting for teaching and learning and for the attainment of competence on the part of children...to make school a rich stimulating experience for young persons...(to) help pupils attain a sense of competence, a readiness for continued learning and an ability to change...school social workers endeavor...to give attention to the pupil's individual needs."
Medical Care for Children in Elementary Schools	1907 A.D. (REF.: 23, p. 202)	England	Parliament (The Education Act)	"The Education (Administrative Provisions) Act, inaugurating medical inspection and 'attention to the health and physical conditions of the children educated in public elementary schools'."
Boy Scouts	1907 A.D. (REF.: The World Book Encyclopedia, 1969 Ed., Vol. 2, p. 444)	Great Britain	Sir Robert Baden-Powell	This organization was formed to give guidance to young boys in the area of good citizenship through activities with other boys in which they learn the positive aspects of social group interaction. (Motto: "Be prepared.")
Old age pensions	1908 A.D. (REF.: 4, p. 154)	Great Britain	Parliament	"Now for the first time payments were to be made as a right, from national funds to a section of the needy, the elderly, within strict limitations of age and means, but with no test of actual destitution.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
"Borstal System"; special care for juvenile delinquents	1908 A.D. (REF.: 22, p. 58)	Great Britain	Parliament	"In 1908, the Prevention of Crime Act had authorized the courts to order special treatment of young delinquents...more specialized in the nature of their methods of education, vocational guidance, and occupational training." This was the 'Borstal System.'
Special school for physically handicapped	1908 A.D. (REF.: 24, p. 235-236)	Charleroi, Belgium	Government	The emotional frustration suffered by a cripple is often more serious than the physical one; the school, by helping overcome physical handicaps, often helped the emotional state of the pupil as well.
The 'eight hour' day	1908 A.D. (REF.: 23, p. 203)	England	Parliament (Coal Mines Regulation Act)	The power of labor in industry and politics had reached the stage where it could curtail the exploitation of labor by management by such provisions as the 'eight hour day'.
State Commission for the Prevention of Blindness	1908 A.D. (REF.: 22, p. 80)	New York	Louise Schuyler	The commission, the first of its kind, "was devoted, primarily to spreading the knowledge of prophylavis ophthalmia neonatorum, an eye infection occurring at childbirth"; the commission took the 'preventative' approach to blindness whereever possible.
Credit Unions	1909 A.D. (REF.: 24, p. 228)	Massachusetts	State legislature	Credit unions were set up to handle small loans and protect the 'little man'; in a manner they were somewhat like co-operative stores.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Minimum Wage Laws	1909 A.D. (REF.: 23, p. 203)	England	Parliament (Trade Boards Act)	"Almost exactly one hundred years after the failure of Samuel Whitebread's attempt in 1808 to pass a minimum wage law through parliament, (parliament) made a beginning in four of the sweated industries of fixing a floor for wages."
Psychological tests in law courts	1909 A.D. (REF.: 24, p. 172)	Chicago, U.S.A.	Julia Hathrop, Mrs. W. Drummer	At the urging of the Psychopathic Institute of the Cook County Juvenile Court psychological tests were accepted as relevant data in understanding the delinquent and his situation.
N.A.A.C.P.	1909 A.D. (REF.: 22, p. 83)	U.S.A.	Negro community leaders	The NAACP; National Association for the Advancement of Colored People to push for reform regarding the Negro in the U.S.A.; e.g.,: equal employment opportunity and pay, desegregation, etc.
National Committee for Mental Hygiene	1909 A.D. (REF.: 29, p. 343-367)	U.S.A.	Clifford W. Beers	The committee's aim was "The end of man's inhumanity to man in the asylums and insane hospitals"; and "To develop preventative programs and to encourage research."
Girl Guides	1909 A.D. (REF.: The World Book Encyclopedia, 1969 Ed., Vol. 8, p. 181-182)	Great Britain	Agnes Baden-Powell	This organization promoted the highest ideals of character and good citizenship through companionship and positive social-group interraction.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Compulsory Health Insurance Program	1911 A.D. (REF.: 23, p. 203; 6, p. 763; 4, p. 183)	Britain	Lloyd George	The power of labor exerted itself to see that the sick did not suffer financially because of their illness. Health was now a governmental concern and responsibility.
Mother's Pensions	1911 A.D.	Kansas City, U.S.A.	Social workers	"No home should be broken up for reasons of poverty"; it was on the basis of that concept that pensions became available to mothers attempting to maintain a home in the absence of the father.
Children's Bureau	1912 A.D. (REF.: 24, p. 152-154)	U.S.A.	Government	The federal government accepted responsibility for the welfare of the nation's children, alternating the burden of several private agencies of the same concern. The Bureau dealt with infant mortality, child abuse, etc.
Welfare Federation -forerunner of Community Chest	1913 A.D.	Cleveland	Chamber of Commerce	"A Cleveland Chamber of Commerce study made between 1909 and 1913 led to the establishment of the Welfare Federation as a united fund raising organization for a group of agencies whose 'worthiness' it certified and whose budgets it reviewed."
First Child Code in North America	1913 A.D. (REF.: 24, p. 215)	Ohio, U.S.A.	H.H. Shirer Judge Addams	The code attempted to standardize and regulate child welfare procedures and practises: within a short time nearly all states had such codes.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Big Brother Movement	1913 A.D. (REF.: 31, p. 388; 32, p. 733)	New York, U.S.A.	E.K. Coulter	"To guide and encourage disadvantaged, alienated boys from poor environments to develop a sense of personal pride and achievement."
Soldier and Sailor's Insurance Law	1917 A.D. (REF.: 24, p. 230)	U.S.A.	Judge Julian W. Mack	The act covered the care of the enlisted man, his family and their protection from handicaps in civil life that might arise because of his military service; the act saw to provision for the soldier's family and provided many benefits hither to unknown.
National Social Worker's Exchange	1917 A.D. (REF.: 24, p. 147-148)	U.S.A.	Qualified social workers	The Exchange was a professional association of 'social workers' (although it proposed no specific definition of 'social worker') which furnished vocational counselling, among other services, for its members. In 1921, it became the American Association of Social Workers.
Family Allowance	1918 A.D. (REF.: 20, p. 554)	France	"Certain Firms"	"In France the modern movement began in 1918 with an industrial scheme under which certain firms paid a small proportion of their wages bill into an 'equalization fund' from which payments were made on the insurance principle to the men who had children." First government scheme - New Zealand, 1926.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
International Labor Organization (ILO)	1919 A.D. (REF.: 22, p. 543-544)	Geneva, Switzerland	European-American Nations and the League of Nations	To "Assist in the improvement of labor-management relations,...social legislation...social security systems...replacement of outdated poor relief by modern social assistance statutes..." on an international basis where labor and management from many nations may come to discuss matters of common concern. The ILO was affiliated with the League of Nations, but was an independent part of it; it is now a specialized agency of the United Nations.
Committee to Prevent Juvenile Delinquency	1922 A.D. (REF.: 24, p. 291-292)	New York	Commonwealth Fund of New York	The committee, recognizing juvenile delinquency as a social problem, attempted to ascertain the causes and possible preventions of juvenile delinquency, rather than simply dealing with the manifestation of the problem in the courts.
Social Group Work	As early as 1925 (date difficult to fix precisely) (REF.: 24, p. 273)	U.S.A. and Europe	Social workers and psychologists	Social group work is a method whereby individuals, through voluntary group associations, attempt to deal with their situation and achieve desirable social ends.
International Conference of Social Work	1928 A.D. (REF.: 22, p. 527-528)	Paris	Social Work Agencies	The conference was set up "for the exchange of experiences and ideas in social welfare...to bring social workers of all countries of the world together to improve...the social welfare systems and methods of social work."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
International Association of Schools of Social Work	1929 A.D. (REF.: 22, p.557)	Paris	Schools of social work	"In order to promote the standards of social work education throughout the world...the promotion of high standards of service and professional cooperation of social workers in all countries of the world."
International Committee on Mental Hygiene	1930 A.D. (REF.: 24, p.207)	U.S.A.	Amos W. Butler	Butler formed this international association so that persons in different countries could consult on problems, questions and theories of mutual concern in the field of mental health.
Civilian Conservation Corps (C.C.C.)	March 31, 1933 (REF.: 22, p.123)	U.S.A.	President Roosevelt	"To establish a nationwide chain of forest camps for unemployed youth...to supply healthy surroundings, adequate food, training and vocational education...to assist in the conservation of natural resources..." The U.S.A. was in a severe depression and this was one of the programs designed to combat it.
Federal Emergency Relief Act	1933 A.D. (REF.: 22, p.117)	U.S.A.	President Roosevelt	The act "represented a radical change in Federal relief policy...for it (was) a new concept of Federal responsibility for human welfare, because... the individual has little control over and influence upon the national production in periods of crisis." The depression brought about this 'conceptual change' of view.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Indian Re-organization Act	1934 A.D. (REF.: 22, p.101)	U.S.A.	Congress	"Appropriations for education of Indian children were increased...support of agricultural training and production, schools, and medical care...to secure the Indian's civic and cultural freedom...management of their own affairs..."
Social Security Act-Centralization of Social Security in the U.S.	1935 A.D. (REF.: 15, p.1446, 1450)	United States	President Franklin Roosevelt	"It provided for unemployment insurance and for retirement and death benefits (extended in 1959 to provide income for dependents of deceased or retired workers). It provided a nationwide framework of incentives, support and standards for financial assistance to persons in three groups...-the aged, the blind and dependent children."
National Youth Administration	June 26, 1935 A.D. (REF.: 22, p.123-124)	U.S.A.	President Roosevelt	This plan, brought about by the depression, provided financial aid for students to continue their education and work programs designed to give experience and training to unemployed youth.
Resettlement Administration	1935 A.D. (REF.: 22, p.126)	U.S.A.	President Roosevelt	This program included "loans to farmers, tenants and sharecroppers" for the establishment of economically viable farms, many of which had been wiped out during the depression and droughts of the early 30's. The program was specifically designed to alleviate rural poverty.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Alcoholics Anonymous	1934 A.D. (REF.: 30, p.21-46)	Akron, Ohio U.S.A.	W. Griffith, H. Smith, Wilson and Robert	A.A. is a fellowship of men and women who share their experiences to help each other solve their common problem of alcoholism. A.A. represents a 'self-help' group approach to a common social problem.
Minimum Housing Standards	1936 A.D. (REF.: 24, p.350)	U.S.A.	Congress	The Multiple Dwelling Law set down minimum standards which rented quarters had to meet. This law recognized governmental responsibility for adequate housing for its citizens.
Day Care Centers	World War II (REF.: 22, p.389)	U.S.A.	Lanham Act	When women entered industry on a large scale during World War II, the establishment of day care centers became an imperative; in such centers the child is attended to during the day while the mother is at work. After the war the number of such centers declined.
United Nations Relief and Rehabilitation Administration (UNRRA)	Nov. 9, 1943 (REF.: 22, p.531)	U.S.A.	Allied Nations	This organization attempted to provide emergency relief for countries whose economic, political and social institutions had been ravaged by the Axis powers; immediate relief-food, clothing, shelter, medical care-as well as restoration of internal organizations was internationally organized and financed.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Special Aid to Disabled	1944 A.D. (REF.: 22, p.51)	Great Britain	Parliament	The Disabled Persons Act of 1944 entitled disabled persons to attend vocational training courses, free of charge, and receive vocational guidance. As well industrial and commercial enterprises were required to employ some disabled persons; this was done to make disabled persons self-supporting wherever possible.
Servicemen's Readjustment Act	1944 A.D. (REF.: 22, p.496-497)	U.S.A.	Congress	"A program of general education and training was made available to honorably discharged veterans..from one to four years..."this program compensated servicemen for time lost during the war when they could have been furthering their education.
Food and Agricultural Organization (F.A.O)	1945 A.D. (REF.: 22, p.546)	Rome	United Nations	F.A.O. seeks to abolish famines and malnutrition through increased food production, a better distribution of food products and, as well, to augment production by the use of scientific methods on an international basis.
United Nations Educational, Scientific and Cultural Organization (UNESCO)	1945 A.D. (REF.: 22, p.546-547)	New York	United Nations	"To contribute to peace and security through international cooperation in the fields of education, science and culture...promote mutual understanding among peoples."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
National Health Service	1946 A.D. (REF.: 4, p.282)	England	Labour Government	"A comprehensive service, both available to all who wished to make use of it... and covering all forms of medical care..."
World Health Organization (W.H.O.)	June, 1946 A.D. (REF.: 22, p.544)	New York	Idea by Brazil (U.N.)	"It is the first world-wide health agency...of international health activities...Its objective is the attainment of the highest possible level of health for all the people on earth."
United Nations Children's Fund	1946 A.D. (REF.: 22, p.537-538)	New York	At the request of U.N.R.R.A.	"To carry on child feeding and child welfare services that could not be discontinued without grave damage to millions of children." orginal title: United Nations International Children's Emergency Fund (U.N.I.C.E.F.)
National Institute of Mental Health	1947 A.D. (REF.: 24, p.406-407)	U.S.A.	U.S. Public Health Service	The Institute was set up in 1947 under a new policy of federal responsibility for the mentally ill; federal funds were appropriated for, community services, research and training of professional personnel: "prevention must get urgent attention if mental illness is not to outstrip every potential means of treatment or custodial care."

INVENTION	WHEN	WHERE	WHO	WHY
International Refugee Organization (I.R.O.)	1947 A.D.	New York, U.S.A.	United Nations	The I.R.O. provides emergency care for displaced persons and refugees in attending to relocation and providing emergency relief such as food, clothing, shelter and medical care.
State Care of Children	1948 A.D. (REF.: 22, p.50)	Great Britain	Parliament	The Children Act was primarily designed to see that children did not go in want; abandoned, neglected or otherwise abused children were to be made wards of the state and given proper care.
National Legal Aid Association	1949 A.D.	Washington, D.C., U.S.A.	Legal Aid Societies	The Association was formed to develop standards and promote the aims of legal aid on a national basis.
Code of Ethics for Social Work	Oct. 13, 1960 A.D. (REF.: 14, p.958)	United States	Delegates Assembly of N.A.S.W.	"The Code of Ethics...was adopted by the Delegate Assembly of the National Association of Social Workers..."
'Medicare' in North America	1962 A.D.	Saskatchewan Canada	Legislature (Woodrow Lloyd)	Free medical care was declared a right of, and given to, all citizens in Saskatchewan: the 'Medicare' plan was financed out of the public purse and was the first such totally comprehensive plan in North America.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Welfare as a Right	1965 A.D. (REF.: 17, p.31)	United States	Office of Economic Opportunities (O.E.O.) Lawyers	"The lead actors who substantially established the legal concept of welfare as a right,...were the Office of Economic Opportunity (O.E.O.) Lawyers, often working with N.W.R.O. (see next entry), who have toiled since the mid-sixties aiding low-income people and creating a new poor 'law'."
Head Start Programs	1965 A.D. (REF.: 27, p.131)	U.S.A.	Office of Economic Opportunities	The "objectives included improving the physical, intellectual, nutritional, motivational and socio-emotional condition" of young children. Parental involvement was stressed" not only to enhance the child's development, but for the gains that could accrue to the parents ..."
Welfare Rights Organization	Summer 1967 (REF.: 17, p.80; 18, p.36)	Washington	Dr. George A. Wiley	Dr. George Wiley, who had organized the Poverty Rights Action Committee in Washington became aware of a protest march of welfare recipients in Ohio in June, 1966. He organized 20 other protests that summer. "Wiley and his few associates help national convention of welfare recipients and other poor people the next summer in Washington and N.W.R.O. was officially born."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Free Birth Control	1974 A.D.	Great Britain	Labor Party	The government of the day did not wish to see unwanted children born, or an increase in the abortion rate; as well they wished to assist family planning. To these ends comprehensive free birth control was made available to all (married or not), including birth control pills, vasectomies and sterilizations.

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ECONOMIC INVENTIONS

Inventions	When	Where	Who	Why
Marriage Bond	Prehistoric [REF.: 1, pp. 44-47]	Homo-Sapien Habitat	Male-Female	"Marriage...came to confer positive economic advantages as the division of labor became more specialized...Each is better off [economically] married than single." The economic advantage is the partnership of food gathering and mutual protection. It is the 'traditional' type of economic organization where production is geared to survival needs.
Human Nuclear Family	Prehistoric [REF.: 1, p. 51]	Human Habitats	Tribes and Kinship Groups	"The human nuclear family ...was formed when the total group created the reciprocal marriage rule ...The family then crystallized as a relatively stable heterosexual pairing of adults in some consistent association..." The nuclear family was a simple economic unit within the traditional economic organization of the group.
Hunting-Gathering Bands	Pre 8000 B.C. [REF.: 1, p. 59; 2, pp. 4-9]	Europe, Asia	Nomads	"The Palaeolithic Era - the span of time from the origins of culture until the beginning of the domestication of plants and animals [about 8000 B.C.] - was a time when there were no forms of economy higher than the hunting-gathering bands." The economy of this period was still traditional in that its sole purpose was meeting the survival needs of the bands.

Social Inventions	When	Where	Who	Why
Socio-Economic Integration	About 8000 B.C. (date not precise)	Foraging Areas	Patrilocal Bands	"The salient feature of the type is simply that all the functions of the culture are organized, practised, or partaken of by no more than a few associated bands made up of related nuclear families...there is no formal economy..." The 'traditional' economy emerged as the many marriage roles became more clearly defined.
	[REF.: 1, pp. 108-9]			
Pastoral Chiefdoms	6000 B.C. (approx.)	Agricultural Areas	Several Tribes	Pastoral chiefdoms "are all economic 'part-societies' in symbiosis with sedentary agricultural societies which have vegetables, grains and craft goods for exchange...the economic symbiosis must have been well established before pastoral chiefdoms could become so specialized as herders... reciprocal exchanges... are never simply matters of individual initiatives, but are always of group, or public interest. This requires an organization of production to create a surplus for exchange... [to] be redistributed to the people." The 'traditional' economy is fading; the 'command' and/or market economy is emerging.
	[REF.: 1, p. 146]			
Chiefdoms	After Tribes and Bands	America, Africa, Asia, etc.	Tribal Societies with Dense Populations	"A chiefdom...is also more and more organized...by the presence of centers which co-ordinate economic, social and religious activities...[a] socio-political innovation...the rise of chiefdoms seems to have been related to...

Social Inventions	When	Where	Who	Why
	[REF.: 1, pp. 143-44]			specialization in production and redistribution of produce from a controlling area..." an important economic step.
'Barter'	pre 3500 B.C. to 800 B.C. (approx.) [REF.: 3, pp. 25-6]	Mediterranean Basin	Sumer, Egypt, Babylonia, etc.	"But in the Seventh or Eighth centuries B.C. virtually the whole trade of the ancient world centering about the Mediterranean basin was being conducted through barter, and the former monetary refinements of lost empires...had been forgotten." Barter is the earliest form of trade; "...in the early days when civilization was just beginning to crystallize from barbarism, the things themselves - cattle, shaped pottery, weapons, woven cloth or what not - still had to be exchanged directly. This was barter."
Taxation	3000 B.C. (approx.) [REF.: 2, p. 25; 3, pp. 7-11; The World Book Encyclopedia, 1969ed., Vol. 18, p. 43]	Sumer	Government	Taxation is the process by which people pay the expenses of carrying on the government and is as old as government. In early times taxes were paid in goods such as farm produce. (payment in kind).
'Money-less' Societies	pre 2500 B.C.	Sumer, Egypt	Kings, Priests	"In the case of moneyless societies...[as in] the domain of the Pharaohs, we are dealing with some form of the 'household' type of social organization... Money was not indispensible, because the essence of the social arrangement did not depend upon exchange, but

Social Inventions	When	Where	Who	Why
				on everyone doing an assigned task and the product being divided... where a group is economically self-sufficent there is no need to exchange..." Economic structure is, thus, dependent on social structure.
	[REF.: 8, pp. 22-3]			
Gold Exports for Trade	2000 B.C.	Ireland	Goldsmiths	"Certainly in the second millennium B.C. Ireland exported goldsmiths' work, with weapons, tools, utencils and ornaments of copper and bronze." Economic trade furthered contacts among nations.
	[REF.: 9, p. 7]			
Organized Servile Labor	2000 B.C.	Stonehenge, England	Druid Priests	"The building [of Stonehenge] suggests organized servile labor, directed by men of high intelligence, from a society whose upper strata at least were rich..." No one is quite sure whether the structure at Stonehenge was religious political, scientific or all three in nature. It did, however, require some degree of economic development and social organization.
	[REF.: 9, p. 8]			
Local Manufacturing Industry	2000 - 1500 B.C.	Ireland	Bronze Workers	"There was an early type of Irish bronze axe produced... before 1500 B.C. ...finds of these axes, here and there with so-called 'hoards' ...and in a few places there have been found the moulds in which they were made...prove a local manufacturing industry."
	[REF.: 9, p. 13]			

Social Inventions	When	Where	Who	Why
Early Standard of Value (Cattle)	2000 - 1400 B.C. [REF.: 3, pp. 27-8; 8, pp. 72-3, 78]	India, Italy, Europe	Aryans	"The Aryans were nomadic or grazing peoples, before they gathered into cities, with great herds of oxen, cows and sheep. Cattle were what they chiefly had to barter for desired luxuries, and so cattle became the customary, and eventually the traditional standard of value. The Latin word for money, 'pecunia' derived from 'pecus', cattle."
Early Bank	1700 B.C. (approx.) [REF.: 3, p. 33; 4, pp. 303-4, 410; 2, p. 26; 8, p. 203]	Babylon	"Trusted Men"	" If a man gives to another silver, gold or anything else to safeguard, whatsoever he gives he shall show to witnesses, and he shall arrange the contracts before he makes the deposits.' So ran the Statutes of Hammurabi..." A charge (usually about 1/60) was levied for the safekeeping of valuables. The invention of a place for the safekeeping of valuables ('bank') preceded that of actual coinage.
Government Regulation of Business Procedures	1700 B.C. (approx.)	Babylon	Hammurabi	The Code of Hammurabi, among other things, legalized complete private ownership of land...made provision for contracts of sale, leases, barter, etc..." Hammurabi set down some of the earliest 'economic law'.

Social Inventions	When	Where	Who	Why
Business Rights To Women	1700 B.C. (approx.) [REF.: 4, p. 415]	Babylon	Hammurabi	By the Code of Hammurabi "wives were allowed to engage in business, to appear as witnesses...to hold and dispose of property,...the old patriarchal authority was on the wane." The opening of economic enterprises to women was an important step, both economically and socially.
The 'Talent'	1500 B.C. [REF.: 3, p 28]	Greece; Asia Minor	Greeks, Trojans	"When the direct transfer of oxen was not convenient or desirable among the Greeks and Trojans... a weight of uncoined gold equivalent in value to an ox was fixed and called a 'talent'." As direct barter became cumbersome, early cultures began to seek a 'medium of exchange'.
Gold Pieces; Silver Coin	1400 B.C. - 800 B.C. [REF.: 3, p. 29]	India	Private Individuals	"In the Indian Epic period (1400-800 B.C.) the word 'nishka' had definitely come to mean a gold piece; and a silver 'karshapana', or coin [was created]... later, metal pieces began to appear, marked to show their weight and hence their value..." these pieces were struck by private individuals.
Regulation of Prices	1300 B.C. (or before)	Hittite Kingdom	Kings	"The records and archives discovered in 1906-1907 near the modern village of Boghazkeui...indicate that the Hittites...had a code regulating prices which indicates that their commerce was well developed."

Social Inventions	When	Where	Who	Why
Inter-State Commerce	1292 B.C.	Egypt, Hittite Kingdom	Rames II, Hittite Kings	"In Boghazkeui has been found a letter from a Hittite king to Rames II (1292-1225 B.C.)...about selling iron to Egypt." Such transactions represent an expansion of economics beyond direct barter.
	[REF.: 4, p. 183]			
'Article Money'	1200 B.C. (approx.)	China	Government	"About the twelfth century B.C. it occurred to the Chinese government that for the purposes of exchange it would be an advantage to substitute for various objects in common use...small metal models which might represent the objects themselves. This they did... Thus 'article money' was invented (e.g.,: a small metal model of a carving knife had the value of a carving knife.)
	[REF.: 4, p. 415]			
International Bronze Smiths	1000 B.C.	Britain; Europe	Bronze-Smiths	"The influence of foreign styles on British styles and patterns suggests migration of metal workers, or at least international relations among them... groups of travelling merchant bronze smiths... collected the scrap and delivered the new finished goods...stocks of old worn articles have been found, and with them the moulds, ingots and metal workers 'tools'."
	[REF.: 9, p. 14]			
Economical Iron Working	1000 B.C. - 700 B.C.	Styria, Alps	Metal Workers	Iron rapidly replaced bronze; iron swords made conquerors of men, iron axes enabled men to move into the forests. Iron spread the area of man's

Social Inventions	When	Where	Who	Why
				dominion and his economics automatically followed. Economical iron working "was a revolution comparible with the discovery of steam..."
	[REF.: 9, pp. 14-15]			
'Uniform' Metal Pieces of Value	800 B.C. (approx.)	Babylonia	Private Individuals	The Babylonians used a silver unit called a 'shekel'; "In time, various shekel pieces came to be cast in shekel, half shekel, and five shekel pieces representing probably the first uniform coinage."
	[REF.: 3, pp. 30-1]			
Coinage	700 B.C.	Lydia	Merchants	"Hellinic trade revived in the 8th century B.C. ...stimulated by the invention of coinage in Lydia." Coinage, as a medium of exchange, vastly increased the potentialities for commercial enterprises in the Mediterranean area and, at a later date, taxation.
	[REF.: 4, pp. 163-4; 2, p. 37; 3, p. 31; 8, p. 83]			
State Coined Money	680 B.C.	Nineveh	Sennacherib	That cast money was being coined by the state in Nineveh may be gathered from graven records of the Assyrian Sennacherib (700 -681 B.C.) who...describes the casting..." In the seventh and eighth centuries B.C. coinage appears almost simultaneously; no doubt the idea spread rapidly because of the ease with which it enabled economic endeavors to be carried on.
	[REF.: 3, p. 31]			

Social Inventions	When	Where	Who	Why
Coinage as a Royal Prerogative	670 B.C.	Lydia	King Gyges; (reign: 670 - 652 B.C.)	The "period of private coinage was brought to an end when the picturesque Gyges...seized the crown. He also seized the occasion to stop all competition [among coin printers] by claiming coinage as the prerogative of the king."
	[REF.: 8, pp. 83-4; 2, p. 37]			
Safe Deposit Department	600 B.C.	Greece	Temple Priests	"From Greece, however, came the real inspiration for the safe deposit department as we know it today...the Greeks discovered in the Temple the only safe depository ...which remained inviolate. The strong religious principles of the educated classes, as well as the superstitions and fears of the unscrupulous and nonbelievers, combined to create about the Temple an atmosphere of greater security than could have been attained by any mechanical devices then known..."
	[REF.: 3, p. 84, 2, pp. 48-50]			
'Tokens' for Objects	600 B.C.	China	Chow Dynasty	"Round cast coins, perforated with a square hole in the middle, were introduced in the Chow Dynasty about 600 B.C., but they were...inscribed as 'equal to one axe', 'one spade', 'one knife' ..." etc. Money economy was rapidly spreading on a global basis.
	[REF.: 3, p. 32]			

Social Inventions	When	Where	Who	Why
Prohibition of Coinage	post 600 B.C.	Sparta	Oligarchic Families	For a state to use coinage it runs the risk of inflation, deflation and a host of economic problems if coinage gets out of hand. "Sparta, indeed, saw the danger to such an extent that she never allowed coinage..." Of course coinage is only a medium and Sparta could not prevent economic problems by simply not allowing coinage.
	[REF.: 8, p. 133]			
Devaluation	594 B.C.	Greece, Athens	Solon	"Solon was made sole archon to remedy the distress caused by the introduction of coined money and high rates of interest (18 per cent) ...Solon devalued the drachma [Greek coin] by about a quarter..." to stablize the economy. Such a measure is still used today.
	[REF.: 2, p. 51; 8, p. 95]			
Planned Government Monetary Reform	594 B.C.	Athens	Solon	To remedy economic distress in Athens "all debts on land were cancelled, all debt slaves in Attica were freed; those sold abroad were redeemed at state expense securing of debts by the person was forbidden." Such action secured the power of Greek government over economics.
	[REF.: 2, p. 51; 4, p. 454]			
Loans and Interest (Usury)	550 B.C.	Greece	Temple Priests	"Later when the Temples safeguarded valuables as a matter of business, they made regular and substantial charges and the records indicate that

Social Inventions	When	Where	Who	Why
				they also lent their own funds at interest...the handling of treasure grew into an important activity...the function of our modern bank."
	[REF.: 3, p. 35]			
Gold and Silver Coined Separately	540 B.C. (approx.)	Lydia	King Croesus	Early Lydian coins "were made of electrum (an amalgam of gold and silver)...it was very easily debased...It was Croesus who definitely abandoned electrum in favor of gold and silver coined separately." Economically, the coinage of Lydia was thus stablized, standardized and made a reliable measure.
	[REF.: 8, p. 54; 2, p. 37]			
Fixed Rates of Interest	500 B.C.	Rome	Senate	"In Rome the early laws of the Twelve Tables fixed a maximum rate of interest (2.5 per cent) but no changes were made in the laws of debt and in two or three centuries the small farmers were wiped out." High usury rates forced this regulation.
	[REF.: 5, p. 251]			
'Modern' Banking	500 B.C.	Rome	Roman Bankers	The "complicated commerce of Rome required a banking system of nearly as high a development as our own...the opening of accounts, the receipt of deposits, the issuing of bills of exchange...letters of credit...loans...mortgages...Interest was paid on time [term] deposits..." thrift and profitable investment were encouraged and practised.
	[REF.: 3, pp. 39-41]			

Social Inventions	When	Where	Who	Why
International Standard of Value	500 - 400 B.C. [REF.: 8, pp. 103-4]	Greece	City-States	"Greece provides us with the first example of conscious internationalization of money. Each state had the right of coinage...[by] agreement between them, they united to exercise their coinage rights...the desire to issue common currency lay" in the need for military cooperation, the advantages of free economic intercourse, greater efficiency and economy in minting, etc.
First Strike	494 B.C. [REF.: 2, p. 70]	Rome	Plebians	"The Plebians, oppressed by debt, seceded to the Sacred Mount (probably the Aventine). The Patricians [nobility] were forced to make some concessions..." This is the first known instance of a strike being used as an economic weapon.
Storage Vault for Valuables	447 B.C. [REF.: 3, p. 35; 2, p. 62]	Athens	Temple Priests	"In the Parthenon...a special chamber called the 'Opisthodomus' was partitioned off as a storage vault for gold and silver...and valuables deposited by the worshippers."
Compulsory Payment by Coin	431 B.C. [REF.: 8, p. 63; 2, p. 72]	Rome	A.P. Tubertus	For many years Romans had been allowed to pay for debts by sheep, cattle or coin, however, "it was necessary to order by law (the lex Papiria) that payments in copper should replace payments in cattle" for reasons of efficiency.

Social Inventions	When	Where	Who	Why
'Numerary' Money	430 B.C. [REF.: 8, p. 238]	Carthage	Government	Numerary money was a paid parchment, somewhat like leather, wrapped around an unknown metal in such a way that the concealed substance "could only be ascertained-if at all-by perforating or removing the parchment enclosure, and thus rendering the pieces worthless." The numerary system worked well until the pursuit of 'precious metals' became the primary economic concern of states.
Emergency 'Tokens'	406 B.C. [REF.: 8, p. 101]	Athens	Government	"The first issue was made in Athens...in a period of extreme financial strain...The types on the coins resembled exactly those on contemporary silver coins, and...were ...to replace the silver and pass at the same value; the Athenians learned an early lesson in the economics of coined money.
'State-Temple' Coinage	406 - 405 B.C. [REF.: 8, pp. 96-7]	Greece	Statesmen, Priests	Greek city states stored much silver in temples and put it into circulation, in the form of bars, to facilitate trade. The need for coins, combined with the ability of the temples to satisfy that need, "produced some of the first coins...in the religious types characteristic of Greek coins." However, "the state and temple authorities were generally interrelated... and it is most likely that...later temple issues were made under civic authority."

Social Inventions	When	Where	Who	Why
Restriction on Commercial Metals	394 B.C. [REF.: 8, p. 101]	Athens	Government	After a period of financial strain the Athenian economy was threatened by an influx of cheap copper coins which deflated Athenian currency. Thus copper was "declared no longer legal tender, and silver alone was to be receivable in commerce and at the Treasury." Athenian coinage was stabilized.
Regulation on Land Ownership	367 B.C. [REF.: 2, p. 72]	Rome	Tribunes	"...The amount of public land which one person could hold was limited to 500 iugera [312.5 acres] to prevent a landowner from gaining too much economic power and threatening the stability of the state.
'Bimetalism'	269 B.C. [REF.: 8, pp. 107-8]	Rome	Bankers	"The first metal money of Rome was copper...the currency was changed into a double standard one by the introduction of silver..." The problem of relating the relative economic value of silver and copper arose and the issue was further confused by the later introduction of gold.
Internal and External Currency	269 B.C. [REF.: 8, p. 112]	Rome	Senate	The Roman state issued silver as the money of external trade and copper for internal circulation. Interaction of the two (e.g., devaluation of one) could not be prevented and related problems arose.

Social Inventions	When	Where	Who	Why
Senators Barred From Commerce	218 B.C.	Rome	Emperor Claudius	"...The conservative majority of the nobility undertook to check by law any efforts of their fellow aristocrats to meddle in commerce... Senators were barred from all business." Thus much of Rome's wealth was excluded from commerce and the economic fabric of the empire was weakened.
	[REF.: 8, pp. 123-4; 2, p. 87]			
Tax Appeal Commission	149 B.C.	Rome	Piso of	"The tribune L. Calpurnius Piso enacted a 'lex Calpurnia' which set up a permanent commission to hear the suits of provincials to recover from governor's money unjustly collected..." Redress of economic grievances was more readily available.
	[REF.: 2, p. 89]			
First Paper (Parchment) Money	140 B.C.	China	Wu-ti	"It was in the reign of Wu-ti, B.C. 140, that the first paper or parchment money of which we have an account was issued... special markings [were] ...a protection against forgery." Paper money was more convenient and speeded economic transactions.
	[REF.: 8, pp. 81-2, 238]			
The Corporation	100 B.C. (approx.)	Rome	Law Makers	"The Roman Law evolved the concept of the corporation...[which] could own property, litigate and engage in many activities." A corporation

Social Inventions	When	Where	Who	Why
				is of tremendous economic importance in the area of joint financing (and liability); by a pooling of resources, members of a corporation could undertake a commercial or business endeavor which they could not undertake on their own.
	[REF.: 4, pp. 353-4]			
State Owned Business Enterprises	27 B.C.	Roman Empire	Government	"The central government... leased state owned properties such as fisheries, mines, timber regions, saltworks, etc." The reasons for such actions were economic (i.e., to increase state revenue) and "to ensure food and other necessities for the population of the Empire."
	[REF.: 4, pp. 353-4, 428-9]			
State Capitalism	202 - 220 A.D.	China	Han Dynasty	"The government took over the operation of the iron and salt industries and went into the business of distributing the most essential commodities; the system was state capitalism, designed to increase the imperial revenue."
	[REF.: 4, p. 497]			
Goods and Labor Price Limitation	301 A.D.	Roman Empire	Diocletian	"An edict limiting the prices of goods and labor was passed...in an attempt to end the economic distress caused by the collapse of currency ..." Economic considerations were becoming the foremost considerations of government.
	[REF.: 2, p. 118]			

Social Inventions	When	Where	Who	Why
Summer Fallowing	400 - 500 A.D.	Kievan Russia	Steppe Farmers	"In the forest...the trees had to be cut down ...and the ground prepared for sowing..., when the soil became exhausted, a new field could be obtained only after further hard work. Therefore the 'perelog' practise emerged: the cultivator utilized one part of the land and left the other fallow..." Agricultural production increased with greater scientific knowledge.
[REF.: 7, p. 52]				
Agricultural Exports	500 A.D.	Kievan Russia	'Merchant Princes'	"Products of the earth were mentioned as early as the sixth centry in a reference to the Antes ...slavic flax was reported on central Asiatic markets in the ninth century..."
[REF.: 7, p. 50]				
Water-Mill	600 A.D.	England	Mill-wrights	"The spread of the water-mill from the zero of A.D. 486 or 586 to the 5000 and more A.D. 1086 is one of the greatest economic achievements...but it is completely unrecorded." Water-mill power revolutionized manorial production by providing cheap efficient power from a readily available source; the river or stream.
[REF.: 9, p. 68]				
Shires-Earldoms	700 A.D. (approx.)	England	Nobility	"The old tribal and clan organization was superseded by a system of quasi-feudal form whereby each man had a lord who was responsible for him at law.

Social Inventions	When	Where	Who	Why
				The great earldoms were beginning to emerge. No common law existed..." The feudal system of a clearly defined social position for each person was emerging and, with it, feudal economics; dues, duties, etc.
	[REF.: 2, p. 167; 9, pp. 44-5]			
Payments in Kind	700 A.D. (approx.)	Wessex, England	Wessex King Ine	"As to payments in kind, there is a long list of food supplies in these Wessex laws...to be paid as rent or tax from each area of a certain size." King Ine made such provisions as coined money was scarce and food supplies were all his subjects had to pay taxes with. Money is non-essential to a feudal system.
	[REF.: 9, pp. 42-5; 2, p. 166]			
Open- Field Agriculture	700 A.D. (approx.)	England	Churls (Freemen)	Open-field agriculture, a system of shared land holding, made agriculture and the keeping of livestock by the freemen (churls) a semi-community affair. The economics of the situation were geared to meeting the needs of the freemen's household and not accumulating great wealth.
	[REF.: 9, p. 49]			
Legal Regulations on Land Management	700 A.D. (approx.)	Wessex, England	King Ine	"...If churls [freemen] have a common meadow or other shared land to fence, and some have fenced their share and some have not, and the crops or the grass are eaten...then those who have failed to fence must compensate the others." Ine held a man responsible

Social Inventions	When	Where	Who	Why
				for the consequences of his management, or lack of it.
	[REF.: 9, p. 49]			
Textile Exports	796 A.D.	England	King Offa of Mercia	"It was from Charlemagne's chauncery that a letter which has survived was sent to Offa of Mercia... begging that the saga (cloth, blanket, coat) might be made of the old size." This is the earliest record we have of the English textile industry which was to rise to great heights...the English, with better wool supplies, were well situated [economically] to develop 'textiles'.
	[REF.: 9, p. 64]			
Three Course Crop Rotation	800 A.D.	Continental Europe	Charlemagne	Three course rotation of crops (winter corn, spring corn, fallow) kept land productive longer and, as such, furthered the economic benefits of agriculture crop rotation yields greater and longer productivity from the land.
	[REF.: 9, p. 54]			
Professional Military Class	878 - 80 A.D.	England	Alfred the Great	"Alfred proceeded to organize the defence of his kingdom...all citizens of the requisite wealth were forced to thegnhood, i.e. to join the military class attached to the royal household...the thegns began to emerge as a professional soldier class."
	[REF.: 2, p. 16]			

Social Inventions	When	Where	Who	Why
Trade Priviledges	911 A.D.	Constantinople	Prince Oleg of Kiev	"The Russians appeared at Constantinople and extracted trade privileges from the Byzantine emperor. Trade became a leading occupation of the Russian princes..."
	[REF.: 2, p. 243; 7, pp. 47-53]			
Municipal Mint	990 A.D.	Venice	Merchants	"Never has there been a city [Venice] where business was more remunerative or more highly organized ...even in a religious age..., the city established control of the Adriatic...at that time there was a municipal mint which issued the first reliable coinage of the middle ages.
Regular Tax for Defence	991 A.D.	England	Ethelred	The Danegeld was a tax first levied in 991 A.D. by Ethelred and used as a tribute to buy off invaders. "This tax, and the invasion led to a rapid decline of the freemen to servile status. Under Canute (1017-35 A.D.) the Danegeld was transformed into a regular tax for defence." The common now bore, in addition to the physical burden of war, the economic burden.
	[REF. 2, p. 167; 9, p. 52]			
Manorial System of Landholding	1017 - 35 A.D.	England	King Canute (1017-35 A.D.)	"Collection of the Danegeld, ['a tax heavy enough to crush down whole classes of society'] originally in the hands of the towns, fell increasingly to the lord of the manor, and it was only a step from holding him for the tax to making him lord

Social Inventions	When	Where	Who	Why
				of the land from which the tax came..." The economic effect of the Danegeld was to reduce most freemen to servile status on manors thus creating the manorial system. The church, exempt from this tax, remained an independent economic power.
	[REF.: 2, pp. 167-8; 9, 52-3]			
Government Trade Regulations	1019 - 54 A.D.	Kievan Russia	Iaroslav the Wise	"...The Russian Justice, a code associated with Iaroslav the Wise, indicates a relatively high development...in the field of trade and finance" which were regulated and dominated by the boyars; i.e., the Russian nobles.
	[REF.: 7, p. 55]			
Land and Titles; Records and Assessments	1086 A.D.	England	William I	The Domesday Book was a detailed record of the size, resources, past and present ownership of every piece of land under the domain of William the Conqueror who had invaded England in 1066." The results, arranged by counties in the Domesday Book gave a unique record as a basis for taxation and administration."
	[REF.: 2, p. 193; 9, pp. 39, 43]			
Household Basis of Economics	Middle Ages 1100 A.D. (approx.)	England Europes	Kings, Lords, Barons	"...For centuries during the Middle Ages all orderly life was organized on this household basis ...'the normal economic unit...was the household. This may be a very large social group, but the mutual offices of the members are rendered as a

Social Inventions	When	Where	Who	Why
	[REF.: 3, pp. 24-5]			matter of obligation..." On the household basis members performed their tasks for their own well being and to fulfill the needs of the community; the principle of self-sufficiency.
State Bank	1160 A.D. [REF.: 3, p. 58]	Venice	Government	"The germ of a state bank was planted in 1160 when the government [of Venita] borrowed 150,000 silver marks from half a dozen of the more important merchants. This was the Monk Vecchio, known as the old debt" which was, in effect, a national debt.
First Issue of Government Bonds	1171 A.D. [REF.: 3, p. 56]	Venice	Government	Venitians in Constantinople were stripped of their possessions by Emperor Manuel which precipitated war with Venice. 'To carry this particular war to its disastrous conclusion, Venice was obliged to levy a forced loan of one per cent on all net incomes, guaranteeing the loan at four per cent. This was in 1171 and is supposed to be the earliest instance of the issue of government bonds."
'Banker Guild' (Monopoly)	1204 A.D. [REF.: 3, pp. 71-3]	Florence	The Medicis	In order to preserve their bank monopoly privileges in Florence the Medicis, and other wealthy families, set up the 'banker's guild'. "No man, no matter what his connections, could bank in Florence unless he was a member and had served an apprenticeship with the guild..."

Social Inventions	When	Where	Who	Why
Gold Standard	1252 A.D. [REF.: 8, pp. 208, 235]	Florence	Bankers	"The gold florin, struck at Florence in 1252, started a new era for the monetary systems of Europe; gold coins were struck soon afterwards in the countries of western Europe..." The gold standard, at least temporarily, stabilized western European economics.
A 'Loan' Bank	1256 A.D. [REF.: 3, pp. 65-6]	Genoa	'City Fathers'	The Genoa bank (Bank of St. Georges) was set up when Genoa contracted her first formal loan. Shares were issued to those financing the original loan. "New loans were separately kept...loans became numerous and their management correspondingly complicated...Each loan... was kept separated with different security and interest...The Bank of St. Georges operated essentially as a loan bank..."
Tariffs	1275 A.D. [REF.: 2, p. 200]	England	Edward I	Under Edward I special 'fees' were levied on imported and exported goods in order to increase revenue and protect home industries. Such 'fees' were called poundage because they were based on weight.
International Trade Security	1303 A.D.	England	Government	Legislation was "developed in 1303 with reference to foreign traders in the sweeping provisions of Carta Mercantoria for the

Social Inventions	When	Where	Who	Why
				peace and security of merchants coming to England from foreign lands." As trade became increasingly important, governments became concerned that it should not be endangered or tampered with.
	[REF.: 5, p. 250; 2, p. 200]			
Economic, Without Political Union	1344 A.D.	Germany	Hanseatic League	"While the cities of Italy fought each other...the cities of Germany drew together...[into] the Hanseatic League of Baltic and north seaports. Nowhere else did purely economic union show what power it had..." The Hanseatic League demonstrated the value of economic cooperation over violent competition.
	[REF.: 5, pp. 261-2; 2, p. 307]			
Wage-Price Regulation and Freeze	1349 - 51 A.D.	England	Edward III, Parliament	England was in a time of "major economic and social crisis. Wages and prices were regulated [1349] by a royal ordinance. To prevent runaway inflation the Statute of Laborers in 1351 introduced the first wage-price freeze."
	[REF.: 2, p. 266; 5, p. 255]			
Seigneurial System of Landholding	1375 - 1400 A.D.	France	Nobility	The noble, or landowner, rather than using the land himself for commercial or industrial purposes "granted out sections of it in small parcels to the peasants in return for a portion of the crops." The French nobility, rather than seeking to become involved in economic enterprises, avoided such actions and, as a result, became totally dependent on the monarch.
	[REF.: 6, pp. 40-2]			

Social Inventions	When	Where	Who	Why
Class Taxation Exemption	1445 - 46 A.D.	France	Charles III	Charles III disbanded mercenary troops and created a national, disciplined and loyal army. To pay for this army a permanent tax (the taille) was introduced. However, the tax was not to be levied on the clergy, nobility, royal officials and other privileged persons. The tax fell exclusively on the poor class "in violation of the first principle of constitutional liberty, equality before the law."
	[REF.: 5, p. 238; 2, p. 279]			
Plough-Horse	1450 A.D.	France	Farmers	In "the Paris region for instance, the plough-horse had superseded the plough ox almost completely by about 1450: "although the first use of the plough-horse was probably earlier. Much debate on the economic aspects of the horse versus the ox was heard; e.g., the horse could plough faster, but, "You can eat plough oxen when past work...no one eats an old horse; you can only sell his hide."
	[REF.: 9, p. 84]			
Private Financial Money Changing Institutions; 'Bank Corporations'	1500 A.D. (approx.)	Venice	Bankers	"Before the third decade of the 14th century the Venitian money changers had developed into recognized keepers of deposits... they were settling the debts of their customers by book transfers of credit...private banking began in Venice as... dealers in foreign moneys ...[they] were the exchange specialists and financial intermediaries of medieval Europe..."
	[REF.: 8, p. 208]			

Social Inventions	When	Where	Who	Why
Supervisor of Banks	1502 A.D.	Venice	Government Appointed	"Various bankruptcies among private bankers in 1502 led to the establishment of a Supervisor of Banks who had the power to examine the solvency of any firm." Governments were beginning to become involved with banks.
	[REF.: 3, p. 60]			
Enclosure System of Landholding	1509 - 47 A.D.	England	Henry VIII	The 'enclosure system' began unofficially in the reign of Henry VIII. "Propelled by the profits to be made either by selling wool or by leasing their lands to those who did and thereby increasing their rents, the lords of the manors found a variety of legal and semi-legal methods to deprive the peasants" of their use of land. Economically the landowner became rich, the peasant destitute.
	[REF.: 6, pp. 9, 21, 28]			
Separation of Bank and Government Personnel	1528 A.D.	Genoa	'City Fathers'	"This tendency of the bank [of St. Georges] to arrogate powers to itself had been anxiously observed within the city. In 1528 an effort was made to curb it by a law providing that anyone who held an appointment under the government could not hold one under the bank." Hopefully this was to prevent 'conflicts of interest.'
	[REF.:			
Stock Exchange	1531 A.D.	Antwerp, Belgium	Financers	A "stock exchange is a market place where members buy and sell stocks and bonds...in the same way a board of trade

Social Inventions	When	Where	Who	Why
				does for commodities," in an attempt to increase their wealth.
	[REF.: The World Book Encyclopedia; 1969ed. Vol. 17, p. 705-6; 2, p. 431.]			
Confiscation of Church Property	1536 A.D.	England	Henry VIII	The power of the church in England lay in the wealth of monastries and church officials. The confiscation of the smaller monastries (1536) and, later, the larger ones (1539) stripped the church of its wealth in England and, hence, its power thus firmly establishing secular rule. "Abbots now ceased to sit in parliament."
	[REF.: 2, p. 370; 6, p. 6]			
Prohibition of Interest, (Usury)	1552 A.D.	Rome	Roman Catholic Church	The church had always been opposed to usury and made its stance official in 1552. The power of this sanction was only as strong as the church itself. As secular power grew the sanction was politely ignored (long before 1552) but it did have some force.
	[REF.: 8, p. 190]			
Church Recognition of Interest (Usury)	1571 A.D.	Rome	Roman Catholic Church	The practice of charging interest was widespread much before 1571 and the church removed its sanction on loans, provided the rate did not exceed ten per cent. The church was simply recognizing economic realities of the day, of which it was a part.
	[REF.: 8, p. 190]			

Social Inventions	When	Where	Who	Why
First Official State Bank	1587 A.D. [REF.: 3, pp. 61, 55-60]	Venice	Government	The Venitian government had always engaged extensively in commercial activities (borrowing, loaning, issuing of bonds, etc.) and so, "By a decree of the Senate the first official state bank of Venice was established in 1587."
City Owned Bank	1609 A.D. [REF.: 3, pp. 98, 107]	Amsterdam	City Fathers	"Amsterdam...had suddenly grown into a great center of international trade...imports and exports reached staggering figures...money flowed in from many lands... worth from ten to fifteen per cent less than the new coinage from the mint...It was also urgently necessary to ease the payment of foreign bills of exchange ...in 1609 the city itself established the bank" assuming all responsibility for it.
Anti-Monopoly Law	1624 A.D. [REF.: 4, pp. 649-50]	England	Parliament	"In 1602 a court held... that monopolies cause increase of prices, deterioration in quality and unemployment and beggary." Patents of monopoly in certain trades were established.
Parliamentary Control of Taxation	1628 A.D.	England	Parliament	The Petition of Right (1628) prohibited all forms of taxation without the consent of parliament. Most of the king's ability to raise revenue was thus curtailed. Parliament,

Social Inventions	When	Where	Who	Why
				through control of economics had gained control of the government.
	[REF.: 2, p. 375]			
Regulation of Merchants' Markets	1633 A.D.	China	Emperor Ch'ung Te	The emperor "imposed strict limitations on the merchants...carefully placing them in the feudal order, where, so the rulers hoped, they could do no harm...the closing of the countryside...had the effect of limiting the initiative of the merchants..." The emperor sought to avoid modernization by curtailing economic activities.
	[REF.: 6, pp. 238-9]			
Standard Size Payable on Demand, Notes	1656 - 58 A.D.	Sweden	John Palmstruch	"The first chartered public bank in Sweden was founded in 1656...Sole rights for the institution were given to John Palmstruch...Within two years [1658] the bank was issuing notes payable on demand, some to order and some to bearer. These were probably the first standard size payable-on-demand bank bills ever issued."
	[REF.: 8, p. 258]			
Playing Card Currency	1685 A.D.	Canada	DeMeulle	"In 1685 the intendent of Canada was awaiting funds...the colony was not...equipped with paper and printing machinery for the production of notes." DeMeulle requisitioned all playing cards and, assigning values, issued them with his signature as currency. DeMeulle recognized that currency in and of itself was not

Social Invention	When	Where	Who	Why
				wealth, but rather a symbol of wealth.
	[REF.: 8, p. 258]			
'Modern' Budgetary System	1689 A.D.	England	Parliament	Parliament formalized its control of governmental economics by "requiring estimates and accounts for supplies, and of specific appropriations, i.e., the nucleus of modern budgetary systems." Control of money was becoming the primary goal of parliament.
	[REF.:			
Land as the Standard Value; Medium of Exchange "Land Bank"	1716 A.D.	France	John Law	Law proposed a bank whose issue of notes would not be founded "upon a reserve of coins but upon possession of land." In 1716 La Banque general was founded with capital "one fourth in cash, three fourths in 'billets d'etat'." However, when people began to convert their shares into coins, which comprised only one fourth of the bank's capital, collapse was inevitable. Law made the age old mistake of seeing money as wealth rather than simply a representation of it.
	[REF.: 8, pp. 244-8]			
Prohibition of Bills of Credit	1720 A.D.	England	Parliament	"...The British government became uneasy at the rapid depreciation of the currency and its instability, and in 1720 a law was passed prohibiting the issuance of

Social Inventions	When	Where	Who	Why
				bills of credit for any but absolutely essential government expenses." The result was deflation of the currency.
	[REF.: 8, p. 253]			
Tobacco Notes	1727 A.D.	Virginia	General Assembly	Tobacco notes "were in the nature of certificates of deposit in government warehouses issued by offical inspectors. They were declared by law current and payable for all tobacco debts within the warehouse district where they were issued. They supply an example of the distinction between money on the one hand, and government notes, or bank notes, on the other. The tobacco in the warehouses was the real medium of exchange. The tobacco notes were orders payable to bearer for the delivery of this money. They were redeemable in tobacco of a particular trade..."
	[REF.: 8, p. 86]			
'Free Banking'	1838 A.D.	New York	Legislature	"In New York a 'free banking' law as passed in 1838 by which one or more persons...might qualify to issue money; ...conditions included the depositing with the state comptroller government bonds or real estate mortgages to the amount of the notes issued and...a [gold or silver] reserve of at least 12 1/2 per cent."

Social Inventions	When	Where	Who	Why
				The system worked because the issue of currency was tied to something tangible; providing a solid base for the currency.
Manditory Reserves	1842 A.D.	Louisiana	Legislature	"This state [Louisiana] then enacted very stringent and enlightened legislation to safeguard the interests of depositors and noteholders; in particular a specie [gold, or silver] reserve was required against ALL liabilities." The legislation prevented the issue of worthless currency by its reserve clauses.
Silver Ingot Dollars	1873 A.D.	U.S.A.	Congress	Silver ingots were "known as trade dollars, and contained 420 grains of standard silver nine-tenths fine, these particulars being inscribed upon the pieces. They were made legal tender for five dollars. Not withstanding these privileges ...[by 1876] their circulation entirely ceased."
	[REF.: 8, p. 87]			
Gold Standard Act	1900 A.D.	U.S.A.	McKinley	The Gold Standard Act "declared the gold dollars to be the standard unit of value and instructed the Secretary [of the Treasury] to maintain all forms of money at a parity with it." The U.S.A. had rejected 'bimetalism' and introduced a compulsory

Social Inventions	When	Where	Who	Why
				uniform standard of value to stabilize the currency.
	[REF.: 8, p. 304]			
Federal Reserve System (F.R.S.)	1913 A.D.	U.S.A.	Congress	The Federal Reserve System combined greater social control of banking with a degree of decentralization; the FRS holds reserves for all national banks (which must join) and for state banks (which may join) of 40 per cent.
	[REF.: 8, pp. 306-7]			
Nationalization of Land	1918 A.D.	U.S.S.R.	Communist Party; Lenin	The USSR was moving towards the economics of collectivization; one step "the nationalization of land was proclaimed (all land to be the property of the state, and only those willing to cultivate themselves to be permitted to use it.)" The state became the sole landholder.
	[REF.: 2, p. 1030; 7, p. 530]			
Full Collectivization	1928 - 29 A.D.	U.S.S.R.	Communist Party Stalin	Instituted by 'Five Year Plans' collectivization was a state planned economic program aimed at rapid, large scale development of industry and agriculture at all levels. Collectivization was a massive economic modernization of Russia which had remained largely feudal in nature until the 1917 revolution.
	[REF.: 7, pp. 547-57; 2, p. 1034]			

Social Invention	When	Where	Who	Why
International Bank for Reconstruction and Development	1944 A.D.	Washington, D.C.	Over 100 Member Nations	"...Often called World Bank, [it] lends money to help finance investments in member countries. It lends money to member governments and their agencies... The Bank gets its loan funds from member countries and by borrowing in the world money market...[to] help members develop their national economies..."
	[REF.: The World Book Encyclopedia; 1969ed., Vol. 10, p. 261]			
Equal Pay for Equal Work	1946 A.D.	Europe America	International Labor Organization, U.N.	The right to equal pay for equal work "is recognized by the Universal Declaration of Human Rights [Article 23] which provides that 'everyone without any discrimination has the right to equal pay for equal work'; it is also mentioned in the Constitution of the International Labor Organization which, as amended in 1946, refers to 'recognition of the principle of equal remuneration for work of equal value'..." This principle is of special interest to women as they have been, and are, the most frequent victims of economic discrimination.
	[REF.: 10, p. 91]			
International Development Association	1960 A.D.	Washington, D.C.	United Nations	The IDA "is a world organization that provides loans...to aid less developed countries that need financial assistance but cannot borrow enough on convention

Social Inventions	When	Where	Who	Why
				terms..." IDA allows 50 years, at no interest, to repay a loan.
	[REF.: The World Book Encyclopedia; 1969ed., Vol. 10, p. 263]			
Local Initiatives Program (LIP)	1971 - 72 A.D.	Canada	Federal Government	"The local initiatives program launched by the government of Canada in 1971-72 had for its objectives the creation of jobs for unemployed Canadians as well as the improvements of the quality of life..."
	[REF.: Projects by People, Manpower and Immigration: Information Canada, Ottawa, 1972. Cat. No. MP54,-172]			

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GOVERNMENTAL INVENTIONS

INVENTION	WHEN	WHERE	WHO	WHY
Government -Concept of the State -King	pre 3500 B.C. (REF : 3, p. 5; 12, p. 61)	Sumer	Sumerians	Out of the necessity to have an authority in an area in order to mediate disputes. Was first embodied in one person and later bureaucracy developed around him.
First Territorial State (union of two regions)	3100 B.C. (REF.: 15, p. 163-164; 16, p. 22)	Egypt	Menes; first dynasty of Egypt	The two regions of Upper and Lower Egypt were united under Menes and his successors. "Mesopotamia had only city-states of no great territorial extent."
Government by Dynasty	3100 B.C. (REF.: 15, p. 104)	Egypt	Pharaoh Menes	Government by king often led to instability and conflict after the king's death over the issue of succession. A dynasty lessened this problem by defining legitimate claims to rule.
Seagoing Ships	3000 B.C. (REF.: 15, p. 108)	Egypt	Egyptians	The desire of the government for commerce, expansion and establishing contacts could be satisfied. Imperialism and warfare were also aided by seagoing ships.
State Justice; Penal Codes	2900 B.C. (REF.: 15, p. 290)	Egypt	Rulers, priests	"As a divine, or semi-divine person, and as the vice regent of the diety on earth, a king could punish offences ...Hence were derived the notions of...justice arising from the king, crimes regarded as 'breaches of the King's peace', etc." The state came to assume responsibility for the various aspects of justice.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Cities City-States	2500 B.C. (REF.: 6, p. 418-420)	Sumer	Sumerians	The Sumerian was compelled by the flooding of the Euphrates and the need for perennial irrigation to co-operate in an elaborate organization. Thus the Euphrates delta was from the outset parcelled out into a number of agricultural - irrigational units each having its own center of administration. These centers grew into cities.
Organized Defence	2500 B.C.	Sumer	City-States	"The city state...organized defence against nomadic tribes..." obviously, tribes or clans have always been prepared to defend themselves but, in Sumer, we find the earliest records of defence under government auspices.
Imperialism: Rule by Conquest	2300 B.C. (REF.: 15, p. 337)	Mesopotamia, Syria	Sargon the Elder of Akkad	"A Semetic king, Sargon the Elder (2341 B.C.-2285 B.C.), conquered all of lower Mesopotamia and a part or all of Syrian... the first empire (as opposed to an ethnic-territorial state) of which we have any record."
Professional Administrator - Civil service	2100 B.C. (REF.: 9, p. 56)	Sumer	Ruler Ur-Nammi	The Ensis or the bailiff of the city diety "became governors rather than the ruling local dynasts. The control of garrisons was taken out of their hands... acquiring too much power... was reduced by the practice of posting officials from one city to another."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Business Rights for Women	1700 B.C. (REF.: 15, p. 415)	Babylonia	Hammurabi (Code of)	"Wives were allowed to engage in business, to appear as witnesses... to hold and dispose of property...the old patriarchal authority was on the wane." Hammurabi recognized sex was no criteria of business or commercial ability.
Law Code	1700 B.C. (REF.: 15, p. 303-304, 410)	Mesopotamia	Hammurabi	The Code of Hammurabi went beyond tribal custom and was compiled from a mass of existing Sumerian law. The code recognized classes in society (aristocrat, freeman and slave), "legalized complete private ownership of land...made provision for contracts of sale, leases, barter, etc."; prescribed ministers of government. It was the first such comprehensive legal code.
Inter-State Commerce	1292 B.C. (REF.: 15, p. 183)	Egypt	Hittites, Egyptians	"In Boghazkeui has been found a letter from a Hittite king to Rameses II (1292-1225 B.C.), of the Nineteenth Dynasty, about selling iron to Egypt." It is the first written record we have about international trade.
Regulation of Prices	1300 B.C. (or before) (REF.: 15, p. 432-433)	Hittite kingdom	Hittite kings	"The records and archives discovered in 1906-1907 near the modern village of Boghazheui...indicate that the Hittites...had a code regulating prices which indicates that their commerce was well developed" land closely watched by the government.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
State Prescribed Religion	1375 B.C. (REF.: 18, p. 59; 16, p. 23)	Egypt	Amenophis IV (Ikhnaton)	Amenophis IV "proceeded with the relentless vigor and all the might of a Pharoh to overthrow the old religions and establish the new one." For the first time a ruler rejected the existing religion and forced the initiation of a new one based on monotheism; the one god was the sun god Aton.
Military Dictatorship	1000 B.C. (REF.: 18, p. 85-86; 16, p. 46-47)	Sparta, Greece	'General' kings	"...The settlements of Sparta saved themselves... by the strictest military discipline and by a political organization planned for war...the Spartan was first and foremost a soldier... Sparta was a training camp of armed men..." Sparta turned to militarism for survival.
Republic	850 B.C. (to 146 B.C.) (REF.: 15, p. 350, 353, 412)	Carthage	Aristocrats	Carthage was a commercial state in that its main occupation was trading by sea; "Carthage was a plutocracy with a republican form of government." Such a government was more suited to the Carthoginians and their commercial activities.
Kingship by 'Appointment'	750 B.C. (REF.: 18, p. 109; 16, p. 69)	Rome	Roman clans	Ten clans of Rome "formed a division known as the curia, and the meeting of the heads of families of the clans was called the council of the curiae (Comita Curiata) which had the right of choosing the king..." A king acceptable to the clans had a much more solid power base than one who simply inherited the throne.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Advisory Council (to the king)	750 B.C. (REF.: 16, p. 69; 18, p. 108)	Rome	Elders	"Rome emerged into history with a king (elective not hereditary) limited by the existence of a senate of 100 elders (patres) which was advisory..." in nature. The Romans saw the benefit of some sort of check on a king's powers.
Coinage	700 B.C. (REF.: 15, p. 453; 16, p. 37)	Lydia (in Asia Minor)	Merchants	"Hellenic trade revived in the 8th century B.C. ... stimulated by the invention of coinage in Lydia." Coinage, as a medium of exchange, vastly increased the potentialities for commercial enterprises and soon became a medium for taxation.
Political Scientists	600 B.C. (REF.: 8, p. 20)	Greece	Greeks	"The Greeks were the first political scientists in history, and in the rise and fall of the various forms of government that they set up can be traced in miniature the whole story of civilization,..."
Election of Magistrates	594 B.C.	Athens	Solon	Solon: "by his constitutional reforms election of magistrates was given to the ecclesia of all freemen;" Solon was primarily concerned with reforming the extremely harsh law codes of Draco (621 B.C.)

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Planned Government Monetary Reform	594 B.C. (REF.: 16, p. 51; 15, p. 454)	Athens	Solon	"Solon was made sole archon to remedy the distress caused by the introduction of coined money and high rates of interest... all debts on land were cancelled, all debt slaves in Attica were freed; those sold abroad were redeemed at state expense; securing of debts by the person was forbidden."
A Court of all Citizens (with right of appeal)	594 B.C. (REF.: 16, p. 51)	Athens	Solon	"By his (Solon) judicial reforms...a court of all citizens, the Heliaea, was created and a right of appeal to it from the decisions of the magistrates was granted."
First Political Party	565 B.C. (REF.: 16, p. 51)	Greece	Peisistratus	Peisistratus "organized a new party, the diabrioi, of the small artisans, shepherds and other poor folk." Thereafter, through a series of wars, he became a 'benevolent despot'.
Democracy -limited	510 B.C. (REF.: 1, p. 18, 61, 93)	Athens	Cleisthenes	After gaining back control of Athens, Cleisthenes instituted sweeping constitutional changes.
Regulation of Daily Life of Citizen	500 B.C. (REF.: 16, p. 45; 18, p. 53-54)	Lu, China	Confucius	As minister of justice in Lu, Confucius put forward a detailed plan prescribing in detail the day to day conduct of the citizens at all levels. Through detailed rules of conduct and etiquette Confucius hoped life in the state would be harmonius and stable. He advocated a "monarchical doctrine of political morality."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
'Special Powers' in Times of Crises	500 B.C. (REF.: 16, p. 70)	Rome	Senate	"In times of crisis the Senate could restore unity by instructing the consuls to appoint a dictator... (who) had absolute power in all fields...and in no case could remain in office for more than six months." The Roman Republic anticipated there would be times of crises and set up this 'mechanism' to deal with it.
A 'Ceiling' on Interest Rates	500 B.C. (REF.: 18, p. 251)	Rome	Senate	"In Rome the early laws of the Twelve Tables fixed a maximum rate of interest..." High usury rates forced this regulation, "but no change was made in the law of debt and in two or three centuries the small farmers were wiped out."
'Ombudsman'	494 B.C. (REF.: 16, p. 70)	Rome	Plebians	The plebians, after a withdrawal of labor (strike), in return for concessions from the patricians "further protected themselves by swearing to avenge any injury done to their officials, the tribunes...the basis of the tribunes powers was the 'ius auxillii' by which they could intervene to save anyone threatened by the action of a magistrate."
First Strike	494 B.C. [REF.: 16, p. 70]	Rome	Plebians	"The Plebians, oppressed by debt, seceded to the Sacred Mount (probably the Aventive). The Patricians [nobility] were forced to make some concessions..." This is the first recorded instance of strike action as a protest method.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Political-Military Confederacy	479 B.C.	Athens	Delian League	"Just after the Persian wars...was established the Delian League which...was a political confederacy of offence and defence." The league represented independent powers in Greece, none under subjugation to another, who had freely joined for mutual protection.
	[REF.: 15, 457; 16, p. 55]			
Jury Pay	451 B.C.	Athens	Pericles	"The institution of pay for the dicasts (jurors) of the popular courts...made it possible for the poorest citizens to serve on juries"; giving the judicial system a measure of independence.
	[REF.: 16, p. 56]			
Voting Rights on the Basis of Citizenship	451 B.C.	Athens	Pericles	"The so-called Law of Pericles restricted the franchise to [those of] Athenian descent on both sides..."; later property qualifications for citizenship were abolished.
	[REF.: 15, p. 456; 16, p. 56]			
Specification of Trial Procedure	450 B.C.	Rome	Senate	Called the Twelve Tables "they did lay emphasis on the necessity for a proper trial, the presentation of evidence and of proof, and the illegality of bribery in judicial proceedings..."; the fundamentals of a modern law court were being developed.
	[REF.: 15, p. 118; 16, pp. 71-2]			
Pay for Troops	405 B.C.	Rome	M. Furius Camillas	During the seige of Veii "...the army had to be kept in the field all winter so pay for the troops was introduced." This innovation probably marks the beginning of the 'professional

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				army' in that a soldier could now provide financially for his family while in the army.
	[REF.: 16, p. 72]			
Federalism -Federal System	400 B.C.	Greece	Upper Class	"The predominance of federalism in the last stages of the History of Greece was chiefly caused by the necessity, after the Macedonian conquest of the Persian empire of having states larger than old city states, to resist Macedonia and the large states formed out of the fragments of Alexander's Empire."
	[REF.: 10, p. 134]			
Regulation on Ownership of Land	367 B.C.	Rome	Tribunes C. Licinius & L. Sextius	"...The amount of public land which one person could hold was limited to 500 iugera..." (312.5 acres); this provision of the Licinio-Sextian Laws prevented a person from gaining too much power and threatening the stability of the state.
	[REF.: 16, p. 72]			
Religious Secular Separation in Law	367 B.C.	Rome	C. Licinius L. Sextius	The distinction between what is permissible under religious law and law made by human authorities marks the beginning of the end for theocracy and the emergence of the 'secular' state.
	[REF.: 16, pp. 70-3; 18, p. 179]			
Making the Laws Public	304 B.C.	Rome	Gnaeus Flavius	"In 304 B.C. a freeman of Appius, Gnaeus, is said to have made public the rules of legal procedure (legis actiones), to which he had access as a clerk of the magistrates." By his work the poor were protected from the manipulation of the law by the rich.
	[REF.: 16, p. 73]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Tax Appeal Commission	149 B.C. [REF.: 16, p. 89]	Rome	Piso	"The tribune L. Calpurnius Piso enacted a lex Calpurnia which set up a permanent commission to hear the suits of provincials to recover from governor's money unjustly collected...[and] could discipline governors."
The Corporation	100 B.C. (approx.) [REF.: 15, pp. 353-4]	Roman Empire	Law Makers	"The Roman Law evolved the concept of corporation... [which] could own property make contracts, litigate and engage in many activities." Corporations probably arose as joint-financing of business ventures by a group, the members of which pooled some of their resources.
Municipal System	100 B.C. [REF.: 8, p. 40]	Rome	Rulers	"In the municipal system we see what ancient Roman civilization has bequeathed to modern Europe; ...; but nevertheless the only real the only constituted system which had outlived all the elements of the Roman world."
Empire -Emperor	100 B.C. [REF.: 8, p. 40]	Rome	Roman Rulers	"Another fact, another idea equally survived; the idea of the Empire, the name of Emperor, the idea of imperial majesty, of an absolute and sacred power attached to the name of Emperor."
'National Citizenship'	90 B.C.	Italy	Roman Senate	"Failing to obtain equal rights with Roman citizens, the Italian colonies finally resorted to rebellion in 90 B.C. This...led Rome to grant citizenship to all Italy, a revolutionary step of the greatest magnitude

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				and importance." Citizenship was now granted on a national basis rather than some other basis.
	[REF.: 18, p. 112]			
Free Food for Poor	58 B.C.	Rome	P. Clodius	Rome was expanding her empire; the ensuing costs created hardships for many people. Clodius "made the distribution of grain free to a large number of people, perhaps 300,000."
	[REF.: 16, p. 96]			
Stated Owned Business Enterprises	27 B.C.	Roman Empire	Government	"The central government took an active part in [business] enterprises. It leased state owned properties such as fisheries, mines, timber regions, salt works, etc." The reasons were economic and "to ensure food and other necessities for the population..."
	[REF.: 15, pp. 353-4, 428-9]			
State Capitalism	292 - 220 A.D.	China	Han Dynasty	"The government took over the operation of the iron and salt industries and went into the business of distributing the most essential commodities; the system was state capitalism, designed to increase the imperial revenue."
	[REF.: 15, p. 497]			
Citizenship to All Free Born	212 A.D.	Rome	Caracalla	"...The rights of Roman citizenship were extended to all free-born inhabitants of the empire...It was a way of filling the treasury of a needy monarch, because taxes ...could now be collected from those who as foreigners had not been assessed for them before."
	[REF.: 16, p. 114; 18, p. 121]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Territorial Citizenship	212 A.D.	Roman Empire	Diocletian	"An edict limiting prices of goods and labor was passed by Diocletian in an attempt to end the economic distress caused by the collapse of currency ..."; the effect of the edict was limited.
	[REF.: 16, p. 118]			
Full Religious Freedom	313 A.D.	Roman Empire	Constantine, Licinius	"...The Edict of Milan... giving full freedom to all religions, including Christianity..." was an extension of the "Proclamation of Toleration" issued in 311 A.D. by Emperor Galerius.
	[REF.: 18, p. 148; 16, 118-9]			
'World Wide' Council of the Church	325 A.D.	Nicaea, Asia Minor	Emperor Constantine	Called by Constantine to settle a theological dispute, the 'oecumenical council' became the vehicle for determining Christian theology and, as such, played a major role in influencing the governments of the day as they maintained close contacts with the church.
	[REF.: 16, p. 119; 18, p. 148]			
Feudal System - idea of corporations - principle of representation	500 A.D.	Europe	European People	"Every man had his place in society regulated by his occupation and when conditions became more settled, and the princple of representation began to gain ground, it was by corporations that the nation was represented." These corporations took the shape of institutions that still exist.
	[REF.: 8, p. 602]			
Civil Service Exams	618 - 626 A.D.	China	Emperor Li Yiian (T'ang Dynasty)	"...The famous system of examinations,...helped the emperor to recruit a bureaucracy with which to fight the aristocracy..." Anyone was eligible and "promotion was

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
	[REF.: 20, p. 164; 16, pp. 339-40]			based on performance..."
First Parliament in the World	930 A.D.	Iceland	Settlers	"In 930 A.D. the settlers [of Iceland] set up the Althing, the first parliament in the world." Iceland, however, remained isolated from the mainsteam of political development in Europe where the parliamentary system and all its trappings developed much more slowly.
	[REF.: The World Book Encylopedia, 1969ed., Vol. 10, p. 19]			
Origin of Parliament - Witan	991 A.D.	England	Anglo-Saxon Kings and Aristocrats	"The origin of Parliament can be traced to the Witenagemot of the Anglo-Saxon Kings, an assembly of the wise men of the realm. It had no definite Constitution it was not elected, and...it contained no element of popular representation as we know it."
Independence of the Papacy	1059 A.D.	Rome	Nicholas II	"...Nicholas II issued a decree which definitely and for all time took the election of the Pope out of the hands of the [Roman] Emperor and the people of Rome and placed it in those of the cardinals, or clergy of his own court." Secular and church areas of authority were slowly being defined.
	[REF.: 18, p. 202]			
Origin of House of Lords	1066 A.D.	England	Aristocracy	"The House of Lords is the lineal descendant of the Great Council or King's Council of the Norman and Plantagent Kings, with which the Saxon Witanagemot was deemed to be incorporated."
	[REF.: 13, p. 355]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Magna Carta - Rule of Law	1215 A.D.	Runnymede	Barons, Priests	"The constitutional importance of Magna Carta lies not in its specific provisions but in its establishment of the principle that the King cannot override the law."
	[REF.: 13, p. 448; 16, p. 488; 18, p. 181]			
Origin of House of Commons	1254 A.D.	England	Aristocracy	"Under the feudal system of local government the shires and boroughs were self-contained communities or 'communes' - hence commons - which had achieved a considerable measure of self-government including the right to assess their own taxes. In 1254 as a result of the Lords' reluctance to take the responsibility for raising the supplies demanded by the King, two knights from each county were summoned to the Parliament..."
	[REF.: 13, p. 346, 631]			
A Check (Veto) on Misgovernment by the King	1258 A.D.	England	Barons	"...Henry III made possible the first constitutional steps towards a limited monarchy. This was the celebrated charter called The Provisions of Oxford of 1258, in which the barons set up a committee as a check on the misgovernment of a king." This council had a veto over the king's decisions.
	[REF.: 18, p. 233; 16, p. 198]			
Early 'Parliament' (Town Representation)	1265 A.D.	England	Barons	After a power-struggle with Henry III, the barons summoned a meeting to which, for the first time, representatives of the towns were called. Such action was spurred by the need for reform.
	[REF.: 18, p. 233; 16, pp. 198-9]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Tariffs	1275 A.D. [REF.: 16, p. 200]	England	Edward I	Under Edward I special 'fees' were levied on imported and exported goods in order to raise money for the government and protect home industries. Such duties were called poundage because they were based on weight.
The 'Model Parliament'	1295 A.D. [REF.: 16, p. 200; 18, p. 233]	England	Edward I	Edward I "summoned the representatives of the shire and borough to meet and 'talk things over'..." "The writs of summons included... the famous phrase...let that which toucheth all be approved by all"; thus laying a base for calls for representative government.
Confirmation of Charters (Parliament Gains Say in Money Matters)	1297 A.D. [REF.: 16, p. 200]	England	Barons, Middle Classes	"The Confirmation of Charters ..., a document almost as important as Magna Carta, extorted by a coalition of the barons...and the middle classes...included the Magna Carta...with the added provision that no non-feudal levy could be charged by the crown without a parliamentary grant." Parliament was reaching for control of taxation."
House of Commons - becomes Separate Body	1300 A.D. [REF.: 13, p. 346]	England	Knights 'Citizens'	"The 14th century saw the emergence of the Commons as a separate body, sitting and deliberating independently of the Lords."
Estates - General	1302 A.D.	France	Philip IV	The Estates-General was comprised of three 'estates' - the clergy, the nobility, and the 'third' estate (wealthier citizens who were not of noble lineage); this form of parliament was first

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				called in 1303 to insure national support for the struggle of Philip IV against Pope Boniface III; the Estates-General became an instrument of the French monarch in pursuing absolutism rather than struggling for parliamentary powers. Each estate met separately and only when called by the king.
	[REF.: 16, p. 232; 18, p. 237]			
International Trade Security	1303 A.D.	England	Parliament	Legislation was "...developed in 1303 with reference to foreign traders in the sweeping provisions of Carta Mercantoria for the peace and security of merchants coming to England from Germany, France, Spain, Portugal, Navarre, Lombardy..." and other lands.
	[REF.: 18, -. 250; 16, p. 200]			
Transcripts of Legal Proceedings	1305 A.D.	England	Edward I	"The Year Books, unofficial, verbatium reports in French (the language of the courts) of legal proceedings..." greatly aided coherence and continuity in legal proceedings.
	[REF.: 16, p. 200]			
Consent of Parliament for Money	1307 A.D.	England	Parliament	"The rule that no demands for money by the king, outside of the customary feudal dues might be made without consent of Parliament dates from about the time of the 14th century. It is this rule which is properly considered one of the guarantees of English political freedom."
	[REF.: 7, p. 387]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Economic Union Without Political Union	1344 A.D. (earliest reference) [REF.: 18, pp. 261-2; 16, p. 307]	Germany	Hanseatic League	"While the cities of Italy fought each other...the cities of Germany drew together...[into] the Hanseatic League of the Baltic and north seaports. Nowhere else did purely economic union show what power it had..." without political overtones. The Hanseatic League demonstrated the value of economic cooperation over competition."
Wage-Price Regulation and Freezing	1349 - 51 A.D. [REF.: 16, p. 266]	England	Edward III	"The ravages of the Black Death...coupled with tremendous war prosperity... dislocated the wage and price structure,... Wages and prices were regulated by royal ordinance (1340) ..." and in 1351 wages and prices were frozen to head off economic disaster.
'Police-Judges'	1360 A.D. [REF.: 16, p. 266]	England	Edward III	'Police-judges' were not so concerned with legal affairs but with matters of economic concern; "they were charged with price and labor regulation." While the government was not primarily engaged in operating economic enterprises it was concerned with economic affairs that affected national stability and currency.
Seigneurial System of Land Holding	1375 A.D. (approx.) [REF.: 20, pp. 40-2]	France	Nobility	The noble, or landowner, rather than using the land himself for commercial or industrial purposes, "granted out sections of it in small parcels to the peasants in return for a portion of the crop." The nobility's lack of interest in enterprises led to their stagnation and total dependence on the monarch.

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Impeachment	1376 A.D. [REF.: 16, p. 267]	England	Edward III	Impeachment was the process whereby lords, dukes, earls, chancellors or court favorites could be removed from office; conviction often meant death. The first impeachment was of two aristocrats for profiteering from office.
Freedom of Speech in Debate	1399 A.D. [REF.: 16, pp. 270-1; 18, p. 235]	England	Parliament	"Parliament...established its rights to freedom of speech in debate" thus increasing its power and, subsequently, its role in legislation and law making in England.
Right of Parliament to Frame Legislation	1414 A.D. [REF.: 18, p. 235]	England	Henry V	The Commons "...outlined in a 'bill' of Parliament the 'act' which the king should make law by his signature... It was not until Henry VI that it became an accepted fact" of the right of parliament to form legislation in its own language.
Parliamentary Control of Enfranchisement	1430 A.D. [REF.: 16, p. 271]	England	Parliament	Parliament wished to ensure that its members (the Commons) were not persons selected by the king who would be under his control; so a statute was passed defining the franchise for elections - in doing so parliament furthered its own independence.
Class Taxation Exemption	1445 - 46 A.D.	France	Charles VII	Charles disbanded mercenary troops and created a national, disciplined and loyal army. To pay for this army a permanent, annual tax (taille) was introduced, however, the clergy, nobility royal officials and other

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				privileged persons were exempt "in violation of the first principle of constitutional liberty, equality before the law."
	[REF.: 18, p. 238; 16, p. 279]			
Modern Statutes	1460 A.D.	England	Henry VI	"Petitions began to take the form of bills which, when approved by the king, became statues in the modern sense." The king agreed not to alter statutes; thus further increasing the power of parliament.
	[REF.: 16, p. 270]			
Regulation of Torture	1484 A.D.	Spain	Torquemada	"The Spanish Inquisitor Torquemada issued a detailed code of instructions in 1484 to make sure that no suspect denounced for heresy could escape the ordeal of suffering."
	[REF.: 18, p. 184]			
Torture by Royal Prerogative	1487 A.D.	England	Henry VII	"...In practice, Henry VII went a long way towards establishing royal absolutism - establishment of the administrative court called the Star Chamber...", in which torture became a royal prerogative by order of the king or his council.
	[REF.: 16, p. 369; 18, p. 184]			
Benevolent Despotism - Administrative Centralization	1492 A.D.	Europe	Hereditary Dynasties	"If there was one aim more than another which had characterized the Benevolent Despotism alike in England, France and Spain, it was administrative centralization, and democracy has pursued the same goal..."
	[REF.: 8, p. 90, 71]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Enclosure System of Land Holding	1509 A.D. [REF.: 20, pp. 9, 21, 28; 21, pp. 194-200]	England	Henry VIII	The 'enclosure system' began unofficially in the reign of Henry VIII. "Propelled by the profits to be made either by selling wool or by leasing their lands to those who did and thereby increasing their rents, the lords of the manors found a variety of legal and semi-legal methods to deprive the peasants..." of use of the land. The 'enclosure system' increased profits at the peasants' expense, through a series of Enclosure Acts through 1547.
Expropriation (Confiscation) of Church Property	1536 A.D. [REF.: 16, p. 370; 20, p. 6]	England	Henry VIII	"...A commission for the inspection of monastries... resulted in suppression, first of all the smaller (1536), and afterwards (1539) the larger monastries and the confiscation of their property. Abbots now ceased to sit in parliament." Henry VIII had firmly established secular rule in England.
Disarmament of the populace	1587 A.D. [REF.: 20, p. 232]	China	Hideyoshi (Tokugania)	"As early as 1587 Hideyoshi ...had proclaimed that all farmers were to turn in their weapons. The measure was intended...to emphasize the clarity and stability of class distinctions."
Bureaucratic Offices as Property	1604 A.D.	France	Henri IV	To increase royal revenue official positions were sold. "The sale of an office meant in effect that the position became a form of private property... The famous Paulette of 1604...

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				granted full property rights [to that office] to the holders' offices in return for the payment of tax and thereby sealed the transition from bureaucratic office to property...The sale of offices was the root of the king's independence ...It was a key prop of royal absolutism."
	[REF.: 20, pp. 58-9]			
Representative Institutions for Colonies	1619 A.D.	Virginia	English Parliament	Democracy first appeared in America when 22 elected persons, by vote of all men age 17 and upward, met in a general assembly in Virginia, a colony of England. This was the first popularly elected assembly of any colony of any nation.
	[REF.: 16, p. 508; 18, p. 342]			
Anti-Monopoly Law	1624 A.D.	England	Parliament	"In 1602 a court held... that monopolies cause increase of prices, deterioration in quality, and unemployment and beggary." Thus parliament abolished patents of monopoly in certain trades. In 1689 the royal right to grant monopolies was abolished.
	[REF.: 15, pp. 649-50]			
Parliamentary Control of Taxation	1628 A.D.	England	Parliament	The Petition of Rights (1628) prohibited all forms of taxation without the consent of parliament. This limited the power of the king in that it curtailed his ability to raise revenue without parliament's approval. Parliament now had sole control of the public purse.
	[REF.: 16, p. 375; 18, p. 331]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Secret Ballot	1629 A.D. [REF.:	Salem, North Carolina	'Town Fathers'	By secret ballot, men could vote without fear of reprisal; it was adopted in 1800 in Australia, 1830 in the United States and 1872 in Britain.
Limitation of Merchant's Markets	1633 A.D. [REF.: 20, p. 239]	China	Emperor Ch'ung Te	The emperor "imposed strict limitations on the merchants carefully enclosing them in the feudal order, where, so the rulers hoped, they could do no harm" [in terms of economic upset and modernization]. The initiative of the merchants was curtailed by "the closing of the countryside..."
Abolition of Royal Courts	1641 A.D. [REF.: 20, p. 17]	England	Parliament	"In July 1641, the Long Parliament abolished the Star Chamber, the main royal weapon...the general symbol of arbitrary royal power."
Divine Right of Kings - Absolute Monarchy	1643 A.D. [REF.: 13, p. 208]	France	Louis XIV	"The doctrine which held that a king derived his authority direct from God and, therefore, invested with an absolute power to override all other authorities. This principle formed the great political issue of the 17th century."
Sole Legislative Power With the Commons	1649 A.D. [REF.: 16, p. 379]	England	'Rump' Parliament	"Appointment of a high court of justice of 135 members to try the king was rejected by the Lords (1649, Jan. 2) and the Commons resolved that legislative power resided solely with the Commons...without concurrence of the Lords."

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
National Monopoly on Imports	1651 A.D. [REF.: 16, p. 425; 18, p. 257]	England	Cromwell; Rump Parliament	The Navigation Act "of 1651 provided that no goods or commodities from Asia, Africa or America or any part thereof could be imported into England, Ireland or any part of the empire except in ships of which the master and a majority of the crew were English..." This helped the British merchant marine gain world supremacy."
Individual Protection Against Unjust Imprisonment	1679 A.D. [REF.: 16, p. 428; The World Book Encyclopedia, 1969ed., Vol. 9, p. 2]	England	Parliament	By the Habeas Corpus Act "judges were obliged on application to issue any person a writ of habeas corpus directing the jailor to produce the body of the prisoner and show cause for his imprisonment..."
Parliamentary Control of the Army	1689 A.D. [REF.: 18, p. 338]	England	Parliament	Traditionally, monarchs exercised a good deal of power simply by maintaining a standing army. To avert such a threat the Bill of Rights made law the provision "that the raising or keeping of a standing army within the kingdom in time of peace, unless it be with the consent of parliament, is against the law."
Bill of Rights	Dec. 1689 A.D. [REF.: 13, p. 44]	England	Parliament	"It merely confirmed the existing rights of Parliament and the subject, which had been violated by James II, and was based upon the famous Declaration of Rights..."

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
'Modern' Budgetary System	1689 A.D. [REF.: 16, p. 430]	England	Parliament	Parliament formalized its control of public monies by "requiring estimates and accounts for supplies, and of specific appropriations i.e. the nucleus of modern budgetary systems" as a further safeguard against royal abuse of the public purse.
Annual Meeting of Parliament	1690 A.D. [REF.: 18, p. 339]	England	Parliament	"The provision that parliament ought to be held frequently was made more definite by the needs of king and state, which called for yearly voting of supplies, and there has, therefore, been a yearly meeting of parliament since 1690."
Control of the Executive by Parliament	1696 A.D. [REF.: 14, p. 24]	England		Ministers could not henceforth perform their duties without the confidence of the party in control of the House of Commons.
Protection for Judges	1701 A.D. [REF.: 18, p. 341; 16, p. 431]	England	Parliament	The Act of Settlement (1701) included "one immensely important provision, that judges should hold office for life and be removed only on an address from both houses...the Crown could never again appoint [or remove] judges to implement tyranny..."
Cabinet -Prime Minister	1714 A.D.	England	Committee of Parliament	From 1717 George I, "being unable to speak English, ceased to attend (the committee) and the business of government was transacted without royal participation." When attending upon the Sovereign the committee had been known as the cabinet, and this

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				name was retained after..." In the absence of the King a minister took over, hence the Prime Minister.
	[REF.: 13, p. 66]			
Presumption of Innocence Before Guilt Proven	1789 A.D.	France	Declatation of the Rights of Man	The French Revolution was a reaction against autocratic, absolute rule. Reforms such as these were aimed at the protection of the rights of man in the state; torture was also abolished in France at that time.
	[REF.: 18, p. 185]			
State Atheism	1793 A.D.	France	Government	On November 10, 1793 the French government abolished the worship of God and began a cult of reason. The worship of God was identified with the clergy and nobles; the two main enemies of the 1789 revolution.
	[REF.: 16, p. 583]			
Full National Mobilization	1793 A.D.	France	National Assembly	France, after the execution of Louis XVI declared war against Great Britain, Holland and Spain. The French army was in no condition for war since many of its officials, who were nobility had deserted. To prevent the restoration of the monarchy the Republican National Assembly on August 23rd mobilized "the entire male population capable of bearing arms"; the first such incidence of full national mobilization in history.
	[REF.: 16, p. 583; 18, p. 361]			
Hansard - Report of Parliamentary Debate	1803 A.D.	England	William Cobbett	In 1803 William Cobbett began to include a report of parliamentary debate in his political Register...After eight years he sold his interest to a printer named Thomas Curson Hansard, who was the son of Luke Hansard,

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
	[REF.: 13, p. 336]			the printer to the House of Commons."
Civil Service Paid by Crown	1816 A.D. [REF.: 4, p. 20]	England	Parliament	"In 1816 an act was passed by virtue of which Parliament took over the responsibilities for the salaries of those employed in public offices." Until this time, paid by ministers.
Abolition of Trial By Ordeal	1818 A.D. [REF.: 18, p. 181]	England	Parliament	Trial by ordeal "died out with feudalism and had so completely disappeared that it was never formally forbidden in English law, until, in 1818, a clever defender invoked it in a murder trial. The new parliament outlawed it."
Press Gallery	1831 A.D. [REF.: 13, p. 566]	England House of Lords	Parliament	"The first Press Gallery was opened in the House of Lords in 1831..."
'Think Tanks'	1832 A.D. [REF.: 17, p. 8]	Philadelphia	Franklin Institute	"It started in 1832, when the Secretary of the Treasury, confronted by pesky steam-boilers that kept exploding in American steamboats, contracted with the Franklin Institute of Philadelphia for a study of the problem. Since then, the government has been paying for more and more outside brain power..."
The Right of Women to Vote	1868 A.D. [REF.: 15, p. 419]	Wyoming, Territory	Governor	"The extensive economic, political and social changes of the 19th and 20th centuries prepared the way for an increase of women's rights and freedom..." The right to vote is one important step in granting them full citizenship.

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Women Voting - Universal Suffrage	1893	New Zealand	Parliament	"In 1893, New Zealand became the first country to grant the vote to women over the age of 21..."
	[REF.: 5, p. 516]			
Cabinet Secretariat	1916 A.D.	England	Lloyd George	The Cabinet Secretariat kept minutes of Cabinet meetings, which were largely confidential, for the benefit of the Prime Minister and the Cabinet.
	[REF.: 18, p. 369]			
Communist Government - Government of Left	1917 A.D.	Russia	Bolsheviks Lenin	"Late in November 1917, an agreement was reached with the Left-wing SR's, three of whom entered the government, and peace negotiations were begun with the Germans. The revolution proper was over, Lenin was in power."
	[REF.: 2, p. 406]			
Nationalization of All Land	1918 A.D.	U.S.S.R.	Communist Party, Lenin	The U.S.S.R. was moving towards collectivization; one step, "the nationalization of land was proclaimed (all land to be the property of the state, and only those willing to cultivate themselves to be permitted to use it)."
	[REF.: 16, p. 1030; 19, p. 530]			
League of Nations	1920	Geneva	Woodrow Wilson, U.S.A.	Member nations of the League "were to afford each other mutual protection against aggression, to submit disputes to arbitration or inquiry...to devote [themselves] to problems of disarmament, labor legislation, health problems..." 42 nations originally joined this attempt to foster international peace and security.
	[REF.: 16, pp. 950-1; 957; 18, pp. 431-37]			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Fascist Government -Government of Right	1922 [REF.: 2, p. 442]	Italy	Mussolini	Fascism, which had began as a patriotic anti-Bolshevik movement, and had then turned into an anti-labor movement...had finally come to power as a conspiracy against parliamentary government in the service of military clique.
Full Collectivization	1928 - 29 A.D. [REF.: 19, pp. 547-57; 16, p. 1034]	U.S.S.R.	Communist Party, Stalin	Instituted by 'Five Year Plans' collectivization was aimed at rapid, large scale development of industry and agriculture at all levels. Collectivization was seen as the way to modernize Russia which had remained largely feudal in nature until the 1917 revolution.
International Bank for Reconstruction and Development	1944 A.D. [REF.: 22, p. 261]	Washington, D.C.	Over 100 Member Nations	"...Often called the World Bank, [it] lends money to help finance investments in member countries. It lends money to member governments and their agencies ...The bank gets its loan funds from member countries and by borrowing in the world money market...These loans help members develop their national economies."
International Civil Aviation Organization (ICAO)	1944 A.D. [REF.: 22, p. 262]	Montreal, Canada	Over 100 Member Nations	The ICAO "...is a special agency of the United Nations that promotes the safe and orderly growth of aviation throughout the world... tries to prevent waste... encourages safety..." The ICAO is an example of international cooperation and action in civil affairs.

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
United Nations	1945 A.D.	San Francisco	Britain, U.S.S.R., U.S.A.	"Delegates of 50 nations met at San Francisco to complete a charter for the United Nations..." which was to deal with political, economic, social, legal, and military problems on an international basis.
	[REF.: 16, p. 1171; 18, pp. 579-85]			
Apartheid	1948 A.D.	South Africa	D.F. Malon	South Africa became the first nation to legally implement and force segregation of persons living in that country on purely racial grounds. While racial segregation and discrimination has always existed, South Africa made 'racism' an official policy in order to preserve the economic and social supremacy of the whites in that country by economic and social exploitation and supression of the native populare.
	[REF.: 16, p. 1204; 18, p. 549]			
International 'Police Force'	1956 A.D.	United Nations, New York	Lester B. Pearson	"In October, 1956, France, Great Britain, and Israel invaded Egypt, which had seized the Suez Canal. The UN accepted Pearson's proposal to set up an emergency military force to end the fighting and supervise a ceasefire. The UN troops quickly restored peace before the fighting could turn into a major war."
	[REF.: The World Book Encyclopedia, 1969ed., Vol. 15, p. 196a]			
International Atomic Energy Agency (I.A.E.A.)	1957 A.D.	Vienna, Austria	United Nations	The IAEA "...is an agency under the United Nations that promotes the development of peaceful uses for atomic energy. It also serves as a

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
				bank for atomic materials donated by member nations. About 90 nations...belong to the agency."
	[REF.: 22, p. 261]			
International Development Association (IDA)	1960 A.D.	Washington, D.C.	United Nations	The IDA "...is a world organization that provides loans...to aid less developed countries that need financial assistance but cannot borrow enough on conventional terms...loans are on easy terms, allowing 50 years to repay with no interest." IDA is an affiliate of the World Bank.
	[REF.: 22, p. 263]			
International Biological Program (IBP)	1961 A.D.	Morges, Switzerland	World Scientists	The IBP "...is a study of the living world to find how animal and plant life can be controlled for man's welfare...scientists from many countries will pact their studies of plant and animal life." Plans for the IBP were made in 1961 and the study began in 1965."
	[REF.: 22, p. 261]			
Peace Corps	1961 A.D.	U.S.A.	First Director, R.S. Shriver, Jr.	The Peace Corps "...is an organization of men and women working to raise the levels of living in various parts of the world..." by providing skilled manpower and assistance where necessary in areas such as health, education, etc.
	[REF.: The World Book Encyclopedia, 1969ed., Vol. 15, p. 184]			
'Medicare' in North America	1962 A.D.	Saskatchewan, Canada	Legislature (Woodrow Lloyd)	Free medical care was declared a right of, and given to, all citizens in Saskatchewan, the Medicare plan was publicly financed and was the first such totally comprehensive plan in North America.
	[REF.:			

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Local Initiatives Program (LIP)	1971 - 72 A.D.	Canada	Federal Government	The Local Initiatives Program launched by the government of Canada in 1971-72 had for its objectives the creation of jobs jor unemployed Canadians as well as the improvement in the quality of life... Participation in the program is open to anyone..." Jobs were 'created' through many and varied programs conceived by various individuals.

[REF.: Projects By People, Manpower and Immigration: Information Canada, Ottawa, 1972. Cat. No.: MP54-172]

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PSYCHOLOGICAL SOCIAL INVENTIONS

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Hypnosis	1841 (REF.: 3, p. 34, Vol. 7)		James Braid	A consequence of his attempt to elucidate the true nature of mesmeric phenomena.
Correlation	1870 (REF.: 1, p. 110)	England	Galton	To measure the tendency of two attributes to be related.
Ranking	1884 (REF.: 1, p. 110)	England	Galton	Ranking methods were developed and scaled in relation to the percentage of the group above the individual. Thus were percentiles developed.
Free Association Technique	1879 (REF.: 1, p. 113) (REF.: 2, p. 15)	England	Galton	Wrote each of 75 words on separate slips of paper. Selected slips at random and timed himself until a word produced 2 ideas, then tried to recall the origin of the ideas and their connection with the stimulus word. Found the most frequent ideas dated from childhood and youth.
Questionnaire	1883 (REF.: 1, p. 113)	England	Galton	First used to ascertain the extent and quality of the use of mental imagery. It was sent to a variety of people and revealed a considerable range of individual differences.
Catharsis	1889 (REF.: 1, p. 207; 1, p. 212)	Paris Vienna	Janet Breuer	Under hypnosis patients were encouraged to recall forgotten painful incidents and to express their feelings about them. The working through of these emotions seemed to bring relief through the disappearance of neurotic symptoms.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Mental Tests	1891 (REF.: 1, p. 110, 138)	Columbia U.	Cattell	Gave freshmen tests to measure individual differences including sensory functions, quickness of movement, perception of time intervals, memory span.
Mental Tests - Forerunners of I.Q.	1895 A.D. (REF.: 2, p. 138; 5, pp. 23, 24)	France	Binet and Henri	"Binet and Henri described tests of memory imagination, attention, comprehension, suggestibility, and esthetic appreciation that were forerunners of the Binet-Simon scales of the twentieth century."
Individual Intelligence Test	1905 A.D. (REF.: 8, p. 43)	France	Binet and Simon	"Binet and Simon brought out the first intelligence scale in 1905, devising it primarily for the purpose of selecting mentally retarded pupils who required special instruction."
Psycho-analysis	1896 (REF.: 1, p. 213)	Vienna	Freud	The attempt to interpret the data of free association, and of dreams reported by the patient, became a new form of therapy and a new method for studying the operations of the mind.
Child Guidance Clinic	1896 (REF.: 1, p. 365)	U.S.	Witmer	Children were treated individually and elaborate case histories were developed through interviews, tests and Witmer's own 'diagnostic teaching' techniques.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Recall and interpretation of dreams	1897 (REF.: 1, p. 213)	Vienna	Freud	Developed a system for analyzing patients' dreams for diagnostic purposes.
Dynamic interchange between patient and analyst.	1920's, 1930's (REF.: 1, p. 270)		The psychoanalysts	The presence and stimulus of the analyst, the active production of verbal responses, and the analyst's interpretation of the individual patient's material during and after each session.
Clinical Interview	1900 (REF.: 1, p. 270)	Vienna	Freud	The clinical interview, the clinical case history, the clinical approach to behaviour as symptoms requiring diagnosis, aetiological description prognosis became a model for studying human behaviour.
Conditioned Response	1903 (REF.: 1, p. 161)	Moscow	Pavlov	Pairing of a neutral stimulus (buzzer) with the giving of food. In time the buzzer evoked anticipatory food takin reactions.
Group Therapy	1905 (REF.: 29, p. 804)	not available	Joseph J. Pratt	"Though foreshadowed as early as 1905 by Joseph J. Pratt's group treatment of tuberculosis patients, only a few physicians practised group therapy before World War II. The large numbers of soldiers requiring psychotherapy compelled psychiatrists to try to treat them in groups, and the use of group methods proved so effective that they developed rapidly in the postwar years."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Non verbal test of intelligence	1917 (REF.: 1, p. 160)	U.S.	Yerkes	Army Beta test was devised for illiterate recruits into the U. S. army.
Trade Tests	1917 (REF.: 1, p. 346)	U.S.	J. C. Chapman	Trade tests were developed in the U. S. Army and published in 1921.
Merit Rating	1917 (REF.: 1, p. 333)	U.S.	Yerkes	Observers were given questionnaires to rate army trainee officers in order of merit for traits such as "Leadership", "quickness of reaching a decision, etc."
Paired comparison technique of rating	(REF.: 1, p. 333)	Yale U.	C.L.Hull	The person is given every possible pair in a group and asked to judge, which of each pair is the higher in a specific trait.
Time and Motion Study	1917 (REF.: 1, p. 352)	U.S.	Gilbreth	Analyzed every movement involved in a job; redesigned the work to decrease the movement and then set time standard for production.
Job analysis	1911 (REF.: 1, p. 345)	U.S.	Gilberth	Devised scheme for analyzing all manual operations in terms of basic types of action (grasp, hold, release, inspect, etc.) This then permitted asking if the operation was necessary and economic of effort.

SOCIAL INVENTIONS	WHEN	WHERE	WHO	WHY
Job Instruction training	1917 (REF.: 1, p. 354)	U.S.Navy Ship Yard		Time and motion studies enabled exact descriptions of improved skills to be given and schemes for imparting such skills through formal practical training to be drawn up.
Paper and Pencil Personality Test	1920 (REF.: 1, p. 334)	U.S.	R.S. Woodworth	The personal data sheet contained 116 items from psychiatric descriptions of neurotic symptoms. Yes or no answers were required to each question such as, "Did you have a happy childhood?", "Do you know anybody who is trying to do you harm?".
Ink Blot Projective Tests	1921 (REF.: 1, p. 339)	Switzerland	Rorschach	Devised and improved a series of tests using ink blots. The subject is invited to describe as many things as he sees in the ink blots and the test is scored under several categories.
Psychodrama	1921 (REF.: 2, p. 474)	Vienna	Moreno	Psychodrama is spontaneity training. "In this method patients more or less spontaneously dramatize their personal problems before an audience of fellow patients and therapists, some of whom also participate in the dramatic production itself. The dramatization is followed by discussion between players and audience."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Vocational Guidance	1922 (REF.: 1, p. 347-8)	London	Cyril Burt	A vocational guidance unit was established and flourished greatly and led to several major research projects.
Aptitude Tests	1923 (REF.: 1, p. 349)	U.S.	Tagg	Analysis of engineering skills led to tests for perception of forms, space, memory of form and size, motor ability, accuracy of detail, attention and ingenuity in problem solving.
Vocational Interest Test	1927 (REF.: 1, p. 338)	U.S.	E.K.Strong	Strong attempted to discover the basic likes and dislikes of representatives of several occupations. Typical patterns for each occupational group were extracted, and this provided a key for each profession. It was then possible to compare the degree of similarity of interest between an individual and an occupational group.
Incomplete Sentences Test	1928 (REF.: 2, p. 45)	New York	Payne	Sentence Completion Test can be used as a group test, and by adaptation of its stimulus phrases to an immediate situation, can provide a personalized medium for projection of significant themes.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Operant Conditioning	1930's (REF.: 1, p. 231)	Minnesota	Skinner	When an animal made a desired response spontaneously, it was rewarded. The animal has to operate on its environment before it is rewarded. This was the application of Thorndike's Law of Effect to modify the conditioned response.
Factor Analysis	1930's (REF.: 1, p. 329)	U.S.	Thurstone	The analysis of correlation matrices to extract and postulate discrete abilities.
Sociometric Measurement	1934 (REF.: 1, p. 377)	U.S.	Moreno	The techniques of sociometric measurement attempt to assess the attractions and repulsions of individuals towards each other within a group. Each member specifies which group he would like to cooperate with in a certain activity and who he would not cooperate with. Techniques aim to measure the strength of the attractions and antipathies.
Fantasy Projective Test	1935 (REF.: 1, p. 340)	U.S.	Morgan and Murray	A picturial method to stimulate stories that can be recorded and analyzed.
Visual Motor Projective Test	1938 (REF.: 2, p. 341)		Bender	Bender Visual-Motor Gestalt test was developed to diagnose personality disorders by having the client reproduce figures.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Client Centered Counseling	1940 (REF.: 1, p. 418-19)	U.S.	Rogers	Rogers developed a system of psychotherapy and was the first to obtain recordings of therapeutic sessions and undertake research on therapy.
Interaction Analysis	1950 (REF.: 1, p. 422)	U.S.	Bales	Interaction Process Analysis is a method of observing, classifying and analyzing the interpersonal reactions of individuals in a group spontaneously working on a problem.

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VOLUNTARY SOCIAL ORGANIZATIONS

Historical Societies

First Established

1572 - England
Society of Antiquaries,
London

An academy for the study of antiquities and history. James dissolved the group for fear it would pry into State secrets.

(REF.: 28, p. 219)

Academie Francaise

First Established

1635 - France

To make French "already more perfect than any living tongue, succeed Latin as Latin succeeded Greek."

(REF.: 28, p. 259)

Trade Union (Labour)

- Combination

First Established

1696 - England

Prime Movers

Journeymen
Feltmakers

Objectives - "To prevent a cut in wages."

Methods - "The first well-documented example that we have of an organized and at least semi-permanent combination to raise wages is that of the Journeymen Feltmakers. In 1696 we hear of a delegation of twelve journeymen in this trade negotiating with their masters ..." Unions developed since this time. Since 1880 there have developed federations of Unions.

(REF.: 10, p. 21)

Fraternity

First Established

1717 - London

Prime Movers

Free Masons

The first Grand Lodge was really inspired by current liberal thoughts, attacking both kings and priests in the interests of utilitarian, humane and rationalistic programs. The Masons had an important impact in educating the masses throughout Europe.

(REF.: 28, p. 315-6)

Orange Lodge

First Established

Sept. 21, 1795,
The Diamond in County
Armagh, Ireland

Objectives - "To band themselves together for mutual protection and assistance should attacks be renewed." "To maintain the laws and peace of the country and the Protestant constitution."

Prime Movers
Protestants

(REF.: 9, p. 7; 22, p. 1029;
21, p. 780 - 781)

Methods - "In 1798, when the United Irishmen rose in rebellion, the Orange Order was used by the Government to suppress them ... In the early years the Order supported the established Church of Ireland and was hostile to Presbyterians, though not as hostile as it was to Catholics. It was at this time mainly a defensive force for the Protestant peasantry against land-hungry Catholics."

Peace Movement - Peace Societies

First Established
1815, United States

Prime Movers
David Low Dodge
Noah Worcester
Two Quakers

(REF.: 26, p. 41-42)

Objectives - To prevent war.

Methods - "The organized peace movement began in 1815 with the founding in the United States of three peace societies, the first in New York by David Low Dodge, followed independently by a Massachusetts society formed by Noah Worcester, and ones in Ohio by two Quakers. The tenets of Dodge's society are expressed in his pamphlet, War Inconsistant with the Religion of Jesus Christ..., which opposed all wars, declaring it was impossible to distinguish between offensive and defensive wars. Worcester's, A Solemn Review of the Custom of War ..., the first specifically to advocate joint action against war through peace societies, urged a confederacy of nations with a high court of equity for the settlement of national controversies. In contrast to Dodge and the Quakers, Worcester merely denounced war in general terms and admitted the legality and justifiability of defensive wars."

Young Men's Christian Association (Y.M.C.A.)

First Established
1844 - London

Prime Mover
George Williams

Objectives - Original - "Improvement of the Spiritual Condition of Young men in the drapery and other trades." 1889 - Luther Gulick - Fourfold philosophy - Companionship, Physical exercise and education and religious activity. 1901 Herbert Ames. "Every Association worker shall set before himself the idea of the Perfect man, and work toward it, body, mind, and spirit."

Methods - Original groups met for prayer and discussion. Set up Y.M.C.A. rooms in which reading materials, teas, 'socials', and lectures were provided. "The Association grew then as a lay, self-governing, voluntary organization, which sought to provide interesting and wholesome leisure time activities for a small proportion of the thousands of young men who crowded English industrial centres, as a means of leading them to 'The Christian way of life'." In Canada, after 1890, it developed an institution with a religious programme, educational work, social activities and physical education. After 1890, it began to work with boys. After the First World War, "there was serious questioning about many of the fundamental tenets of Association work - beliefs in possibility of developing Christian character through Bible study classes or religious services; the utility of adult-conceived programs for youth; the value of prize awards, and competition - all of these were regarded with considerable skepticism." After 1918 objectives and methods in the religious area began to be questioned and there was a movement away from the evangelical position to a more liberal view. Since 1945 this has led to a "considerable vagueness in the Association about objectives and methods," but the Y.M.C.A. has continued to function and grow, especially in the physical and social programs.

(REF.: 4, p. 909; 20, p. 4,5,
176-193, 194, 320-321, 351.)

International Red Cross

First Established

22nd August, 1864,
Geneva, Switzerland

Prime Mover

Jean Henri Dunant

Objectives - Original - 1. "The establishment of voluntary 'medical services' in each country for the relief of the wounded in time of war. 2. To establish in the future permanent Red Cross Societies which would be called upon to act in times of peace to "despatch of various forms of relief, overcome difficulties as regard customs, prevent waste of every description ..."

Methods - First Geneva Convention of the International Red Cross set up the basic provisions for the operation of the Red Cross in a time of war. First used in Franco-Prussian War of 1870, when the International Committee created the first International Agency for Relief of the wounded. "It was established at a nearby neutral point, Basle, Switzerland, and it carried out a pioneer relief supply scheme across the frontiers; while in Geneva the exchange of lists of prisoners-of-war and their correspondence began to assume a major part of Red Cross duties." In each war since the Franco-Prussian these services of the Red Cross have continued and have expanded. Red Cross Societies have been established throughout the world. In times of emergency they have given aid to people around the world.

(REF.: 19, p. 38, 39, 49; 11, p. 22-23)

Foresters, Independent Order of

First Established
1874 - Newark, N.J.,
Incorporated in
Canada, 1881

Objectives - "A fraternal benefit society, founded...as a death assessment society...."
Methods - "It operates 20 offices in cities across Canada, 45 in the United States and offers to its members more than a dozen plans of insurance....Fraternal benefits include aid in cases of poliomyelitis, tuberculosis, and cancer. Local courts participate widely in community activities."

(REF.: 13, p. 204)

Canadian Clubs

First Established
1893 - Hamilton, Ont.

Prime Mover
Charles R. McCullough

Objectives - Original - "To become better informed as Canadians and to implement the ideals of Confederation. Present - "To foster throughout Canada an interest in public affairs and to cultivate an attachment to Canadian institutions."
Methods - "They meet at intervals to hear distinguished Canadians or visitors from other countries speak on issues of national or international importance. Some of the clubs also sponsor projects for encouraging Canadian Art and Authorship, promoting Canadian citizenship (especially for new citizens) and an awareness of Canadian history and historic sites."

(REF.: 3, p. 188)

Victorian Order of Nurses

First Established
1897 - Ottawa, Ont.

Objectives - "(a) To supply nurses, thoroughly trained in Hospital and District nursing, and subject to one central authority, for the nursing of the sick who are otherwise unable

Prime Mover
Lady Aberdeen,
Wife of Governor-General

to obtain trained nursing in their own homes, both in town and country districts; (b) To bring Local Associations for supplying District Nurses into association, by affiliation with the Order which bears Her Majesty's name, and to afford pecuniary or other assistance to such local associations, (c) to maintain, as a first necessity, a high standard of efficiency for all District Nursing; (d) To assist in providing small Cottage Hospitals or Homes."

Methods - "There was to be a Central Board, and in every district where a nurse was established, a Local Board of management, under whose supervision all arrangements for the nurse's work would be guaranteed." Nurses always have had to meet certain standards to work for the order. Branches are set up across Canada, "are supported by means of fees from patients (if able to pay), fees from insurance companies for service to policyholders, membership fees, municipal and township grants and additional money-making efforts on the part of local boards." Many are members of Community Chests.

(REF.: 16, p. 8, 113)

Imperial Order Daughters of the Empire (I.O.D.E.)

First Established
1900

Prime Mover
Mrs. Clark Murry

Objectives - "To assist with the education of Canadian Youth, to stimulate patriotism, to foster unity in the empire, to give aid to members of the armed forces and their dependents, to promote good citizenship and to cherish the memory of brave deeds."

Methods - First project was to supply comforts to Canadian soldiers fighting the Boar War." "As a memorial to those who died in the two World Wars, the I.O.D.E. grants valuable bursaries and scholarships to sons and daughters of men killed or seriously disabled. A total of $13,000,000. was expended by the order on various war time projects during the two World Wars and post-war relief. In peacetime, comforts are provided for veterans, for servicemen at home and abroad and for men at sea. Other activities include financial aid and personal visits to hospitals, assistance with nurseries and clinics, family relief in case of fire or flood."

(REF.: 18, p. 241)

National Committee for Mental Hygiene

First Established
1909

Objectives - "The end of man's inhumanity to man in the asylums and insane hospitals." "To

Prime Mover
Clifford
Whittingham Beers

develop preventative programs and to encourage research."

Methods - After organizing the Connecticut Society for Mental Hygiene in 1908, Beers organized the national committee. The first few years were spent in raising money for its work. After 1915 special studies and surveys were conducted by the National Committee funded by the Rockefeller Foundation. It organized many state agencies. Sub-committee was appointed to give advice and assistance regarding the problem of feeble-mindedness. A survey of all the good laws regarding the insane was prepared. A complete list of institutions was made and information was collected on systems of care. A card index for articles on mental diseases in various languages was made. Published bibliographies. Set up Mental Hygiene Exhibits. Sponsored Mental Hygiene Conventions.

(REF.: 1, p. 343 - 367)

National Association for the Advancement of Colored People (N.A.A.C.P.)

First Established
1909, New York
Prime Mover
William English
Walling

Objectives - "To combat racism, stamp out lynching and Lynch law, eliminate racial discrimination and segregation, and assure negroes of their constitutional rights."

Methods - "Since its founding, the N.A.A.C.P. has sought its goals through legal action to protect the rights of Negro citizens, nonpartisan political action to secure enactment of civil rights laws, a program of education and public information designed to win popular support, and direct action to achieve specific goals. By the second half of the 20th Century, the N.A.A.C.P. had become a nationwide association of more than 400,000 members in over 1,600 local units in 50 States, and the District of Columbia. Headquarters were maintained in New York City with a bureau in Washington and regional officers in Atlanta, Dallas, Kansas City, Mo., and San Francisco. Its monthly organ The Crisis, had a circulation of more than 130,000.

(REF.: 27, p. 52)

Big Brother Movement

First Established
New York City, 1904
In Canada - Toronto,
1913
Prime Mover
Ernest K. Coulter

Objectives - "To guide and encourage disadvantaged, alienated boys from poor environments to develop a sense of personal pride and achievement."

Methods - The Big Brother Movement provided summer camps, group work, and health and vocational guidance programs to supplement the individual work performed by the volunteer Big Brothers. The present local agencies, patterned after this initial Big Brothers Movement, set up similar programs according to the needs and resources of each community. The work of the individual local agencies is supported by volunteer contributions. The Big Brother agencies co-operate closely with other social agencies, public schools, and institutions, using existing neighbourhood resources as fully as possible."

(REF.: 2, p. 388; 3, p. 733)

Four H-Clubs

First Established
1904 - Douglas County, Minnesota

Prime Mover
T. A. Erickson

Objectives - Original - "To promote better crops, livestock, and homemaking." "A co-ordination of ideas gradually developed as a means of helping young people grow up on the farm."

Methods - Began as a corn, potato and tomato growing contest. Competition in fall at school fairs. Around 1920 began raising and showing cattle and pigs. Display cattle and pigs on agriculture and extension trains throughout the state. Four leaf clover emblem - head, heart, hands and health - was adopted for national club work as early as 1910, but the name '4-H Club' did not become generally used until after 1920.

(REF.: 6, p. 56-87; 49;
8, p. 666)

Rotary

First Established
1905 - Chicago, Ill.

Prime Mover
Paul P. Harris

Objectives - To combine "fellowship and volunteer community service with emphasis on good citizenship and high ideals."

Methods - Harris' original methods were "rotation in the place of meeting, in the chairmanship, and even in membership which was to be continued for one year only. The last named provision was an expedient to insure attendance, it being thought that sustained interest in attention to club duties would be assured if continued membership were made to depend upon re-election. Members were fined 50 cents for failure to attend meetings, and no excuses were given consideration. The proceeds of the fines imposed paid all expenses of running the club." Membership was limited to one from each trade or profession in a community. They meet for luncheon and discussion. Today, Rotarians are active in programs for community welfare, good citizenship, improvement of rural-urban understanding, promotion of high standards in business and the professions, and the advancement of international understanding, good will and peace."

(REF.: 12, p. 258; 17, p. 93-7; 14, p. 336)

Boy Scout Movement
- Boy Scouts

First Established
15 January, 1908
London

Prime Mover
Sir Robert Stephenson Smyth Baden-Powell
Knighted July, 1929
- Lord Baden-Powell

Objectives - "Started for the purpose of training boys in the essentials of good citizenship."

Methods - Baden-Powell wrote a book *Scouting for Boys*, and placed it on the news stands in four parts. He intended that his ideas be used in existing clubs to improve them and when a boys' club did not exist, they could form a Boy Scout patrol. He proposed in his book the Patrol System, Troups, Scout Master, Scouts Oath, Scout's Law, System of tests, Badge system, Court of Honour, a motto, and a uniform. He instructed the boys in skills necessary for camping and life in the open. He began issuing a paper called *The Scout*. He instructed boys in health in body, mind and chivalry. He began having camps in 1908. He realized that his ideas were not going to be accepted by the existing movements by the autumn of 1908. Therefore, Baden-Powell set up a system in Inspectors, Commissioners, Counties, Districts and Scout Masters to lead the movement in 1909. Most of the same methods are used today.

(REF.: 5, p. 26-72; 23, p. 48)

Alcoholics Anonymous, General Service Board of
- Al-Anons for wives of Alcoholics

First Established
1934 - Akron, Ohio,
Formal organization est. 1938, New York City

Prime Mover
William Griffith Wilson and Robert Holbrook Smith

Objectives - "To stay sober and help other alcoholics to achieve sobriety."

Methods - In December, 1938, the Twelve Steps of Alcoholics Anonymous were formulated and incorporated into the A.A. book as guiding principles for alcoholics. The 'big book' *Alcoholics Anonymous* was published in 1939. In 1940 the first A.A. clubhouse was opened in New York City. In 1942 the Serenity Prayer was adopted for use. In 1944 A.A. began publishing official journal - A.A. Grapevine. Members meet in groups, "share their experiences, strength and hope with each other..." Requirement for membership in a group is the desire to stop drinking. There are no dues or fees for A.A. membership. A.A. is a self-supporting organization through the contributions of its own members. "A.A. is not allied with any sect, denomination, politics, organization or institution; does not wish to engage in any controversy; neither endorses nor opposes any causes."

(REF.: 15, p. 21-46; 24)

Women's Liberation
- National organization for women

First Established
1966

Prime Mover
Betty Friedan,
Author of The
Feminine Mystique

Objectives - "Full equality for all women in America, in truly equal partnership with men, now."

Methods - In 1968, picketted the Equal Employment Opportunities Commission on sex discrimination in employment. In 1970 picketted to protest an attempt to prod Congress into enacting the 26th Amendment to the Constitution guaranteeing equal rights regardless of sex. In 1968 "picketted the New York Times in protest against the 'Help Wanted - Male' and 'Help Wanted - Female' column headings in classified advertising." 'Helping two stewardesses' unions fight for the right of an airline hostess to stay on the job after she dodders past her 32nd birthday." "In New York they are pushing for the repeal of all state abortion laws." Their goals are "a nationwide network of child-care centres, operating as optional community facilities, revision of the tax laws to permit full deduction of housekeeping and child-care expenses for working parents; ...maternity leave and guarantee a woman's right to return to her job after childbirth; revision of divorce and alimony laws... and a constitutional amendment withholding Federa funds from any agency, institution or organizatio discriminating against women."

(REF.: 7, p. 24; 25, p. 55)

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LEGAL SOCIAL INVENTIONS

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Court of Law	2,400 B.C. (REF.: 3, p. 497)	Sumer	Priests	"The law courts were but a department of the divine government and would therefore naturally be directed by the god's servants; and further, since all land in theory and a vast proportion of it in fact, belonged to the god most economic questions would be of direct concern to him and would be regulated by priests."
Judges	2,370 B.C. (REF.: 11, p. 217; 3, p. 497)	Sumer	Priests	"the existance of men called 'judges' is attested from Sargonid times (circa 2,370 B.C.) and before."
Code of Law	2,100 B.C. (REF.: 2, p. 56)	Sumer	Sumerian Rulers	"The urge to regulate society by written ordinances had long been felt in Sumer." By 2,100 B.C. laws were beginning to be stated in written form.
Punishment for Crime	2,100 B.C. (REF.: 11, p. 194)	Sumer	Sumerians	"The penalties for crime were generally either death or a fine, though mutilation was sometimes resorted to, especially in Assyria. There was no general system of imprisonment, although a person accused might be taken into custody whilst awaiting trial ..."
Trial by Ordeal	1,800 B.C. (REF.: 11, p. 219)	Sumer	Hammurabi	"When there was a clash of evidence and neither side admitted guilt by refusing the oath by the life of the gods, the decision would then be handed over to the gods themselves. This was given, ..., by the Ordeal."
Civil Courts - secular judges	1,800 B.C.	Babylon	Hammurabi	"Hammurabi who was not a god, ..., or even the representative of a god, was meticulously

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 3, p. 498)			careful in religious matters but quite determined not to submit to priestly control, and it is in his reign that for the first time we see civil courts with secular judges in full power."
Concept of Individual in Law	610 B.C. (REF.: 15, p. 102; 10, p. 575)	Israel	Jewish people	"But the greatest and most distinct triumph of the Jewish law was the final emergence of the individual .... At last, clearly and fully, the individual emerged as having rights of his own. No longer was the family treated as a whole in questions of responsibility."
Practice of Law	100 B.C. (REF.: 13, p. 181)	Rome	Public Servants	"The duties of the praetor in Rome could hardly be administered by one not bred in the law."
Principle of Proof by Rational Inference	100 B.C. (REF.: 8, p. 23; `13, p. 417)	Rome	Public Servants	"The principle of proof by rational inference to be drawn from proven facts and proof by the relevancy of testimony of witnesses ... was a part of the Roman law."
Cannon Law	200 A.D. (REF.: 9, p. 390)	Roman Empire	Christian Priests	"The origin of cannon law is to be found in the practice of the early Christian Church before it became dominant in the Roman Empire, of withdrawing controversies, so far as it was possible, from the secular pagan courts and submitting them for final determination to the authority of the elders and governors of their own communities."
Civil Law	534 A.D.	Constantinople	Justinian	Civil Law is a system "derived from the phrase Corpus juris

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 9, p. 382)			civilis ('The Body of the Civil Law'), which in the early seventeenth century was applied to the compilation of the Byzantine emperor Justinian, published in A.D. 528-534. The modern Civil Law is founded on this compilation ...."
Inquest - beginning idea of Jury	800 A.D. (REF.: 6, p. 241)	France	Carolingian Kings	"The inquest was a royal demand for information by the government. It was a direction to the local official to summon a number of persons from the district who would be acquainted with the specific facts, and to require them to attend upon a royal officer and testify to the truth of the matter."
System of Writs	1110 A.D. (REF.: 9, p. 385)	England	Henry I	"The exercise of the royal jurisdiction, ..., was accomplished by the system of writs begun under Henry I by which the sheriff was instructed to summon a litigant to appear before the curia to answer the claim of a royal officer or another person."
Cannon Law - systematized	1140 A.D. (REF.: 9, p. 391, 383; 15, p. 229)	Bologna	Gratian	"This attempted by exposition and revision to reconcile discrepancies and place the canonical material in an orderly form."
Jails in each County	1166 A.D. (REF.: 12, p. 557)	England	Henry II	"Jails were widely used in 12th century Egnland as places for the confinement of accused persons until their cases could be tried at king's court. In 1166 Henry II commanded that every county should establish an institution for this purpose."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Circuit Judge - Origin of True Criminal Law	1176 A.D. (REF.: 6, p. 111)	England	Henry II	"Henry II reorganized the system and divided England into circuits, which were regularly ridden for this purpose; and taken in conjunction with the Assizes of Clarendon and Northampton their administration of justice may be said to be the origin of true criminal law."
Jury	1176 A.D. (REF.: 6, p. 242)	England	Henry II	"The ordinances directed that the Chancery should issue a writ, to the sheriff of the county in which the land in dispute lay, to summon twelve men of good repute ... to give a verdict to the justices to take the assizes when they came into the county. This verdict ... required the assize to say whether decision of the land in dispute had taken place."
Coroner	1194 A.D. (REF.: 5, p. 1)	England	Richard I	"The office of coroner was established in September 1194 when the justices in Eyre were required to see that three knights and one clerk were elected in every county as 'keepers of the pleas of the crown' ... Throughout the middle ages the coroner could be ordered to perform almost any duty of an administrative or inquisitorial nature...."
Justice of the Peace	1195 A.D. (REF.: 6, p. 227)	England	Richard I	The idea of Justice of the Peace originates in the same act that created the coroner.
Magna Charta - Reign of Law	1215 A.D.	England	Barons Church	"The king, by the combined force of the Church and the barons, was compelled to sign what is called the Magna

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 15, p. 250; 9, p. 386)			Charta .... Established the doctrine that in England there should be a reign of law, since the king engaged that he would take no proceedings against any one except by the judgement of his peers or the law of the land."
Register - Law Book - Plea Rolls	1227 A.D. (REF.: 6, p. 265; 10, p. 385)	England	Students, Junior Members of Bar	"The mounting number of writs made it possible to collect them and to treat the collection as a 'law book'. The first collection that has survived - the earliest 'Register' - is of 1227."
Attorney	before 1235 A.D. (REF.: 6, p. 81, 84)	England	Clerks	"The attorney or general legal advisor first appeared as a legal representative where a man was involved in litigation at a distance from his home." He was a "friend or advisor who undertook various steps such as the service of writs which were inconvenient for the client ...."
Barristers Solicitors (A division is made in English System)	1250 A.D. (REF.: 9, p. 388)	England	Clerks	"The complexities of the land law provided a constant challenge to the ingenuity of the professional lawyers, whose organization in the thirteenth century had taken on a characteristically medieval form, resembling that of the craft-guilds with their master and apprentices."
Law Reports - Year Books	1272 A.D. (REF.: 6, p. 269; 9, p. 388)	England	Possibly Students, Junior members of Bar	"Both the authorship and the origin of these Year Books are obscure; ... there is now a growing agreement that they were used for instruction and hints as to contemporary practice."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Training of a Lawyer	1292 A.D. (REF.: 6, p. 83)	England	Edward I	"In 1292, Edward I ordered the judges to take steps to ensure that adequate numbers of skilled 'apprentices' were available to argue cases in court."
Attorneys Instructing Counsel	1300 A.D. (REF.: 6, p. 84)	England	Attorneys	"As early as the fourteenth century we find attorneys instructing counsel such as they do today. Counsel had to accept the facts as instructed, but was free to conduct the legal argument on his own initiatives."
Consent of Parliament for Money	1307 A.D. (REF.: 6, p. 387)	England	Parliament	"The rule that no demands for money by the king, outside of the customary feudal dues, might be made without consent of Parliament dates from about the time of the fourteenth century. It is this rule which is properly considered one of the guarantees of English political freedom."
Oath to Tell Truth	1327 A.D. (REF.: 6, p. 245)	England	Courts	"By the time of Edward III witnesses took an oath to tell the truth and jurors only to tell the truth to the best of their knowledge."
Law of Treason	1352 A.D.	England	Compromise between King and Barons	"The object was to prevent the Judges, appointed by the King, from multiplying new treasons and forfeiting to the King the property of the traitors, which would otherwise have escheated to the mesne lords for felony. High treason was limited to planning or carrying out actual violence on the person of the monarch, consort or heir or his high officials,

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 6, p. 365)			to forging the Great Seal, uttering false coin, or military rebellion."
Case Law - Cases as Precedent	1400 A.D. (REF.: 6, p. 276)	England	Judges	In the reign of Henry IV (1399-1413) the judges already refer from time to time to 'books' in which they can show authority for their rules, and the report or annotator of the report can find an exact reference."
Witnesses Compelled to Appear and Testify	1562 A.D. (REF.: 6, p. 245)	England	Chancery	"In 1562, following Chancery practice it was enacted that witnesses could be compelled to appear and testify."
Work Houses	1576 A.D. (REF.: 12, p. 557; 1, p. 5-6)	England	Justices	"During the 16th Century a number of houses of correction were established in England and on the continent for the reform of minor offenders. In these institutions there was little segregation by age, sex, or other conditions."
Habeas Corpus - Rights of Individual Protected	1641 A.D. (REF.: 14, p. 564)	England	Parliament	"Act of 1641, ..., had provided that any person imprisoned by the crown or the Privy Council was entitled to have the legality of the commitment examined and determined by the courts by means of the writ of habeas corpus."
Accessories After the Fact	1691 A.D.	England	Parliament	"Receivers of stolen goods were made accessories after the fact in 1691. In earlier times the law was rather obscure."
Statute of Limitations	1696 A.D. (REF.: 18, p. 492)	England	Parliament	A 3 year limit from the date of the offense for prosecution except for assassination or injury to the king.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Modern Form of Law Report	1756 A.D. (REF.: 6, p. 274)	England	Burrow	"These reports adopted the more modern form, with a headnote and a clear division between the facts of the case, the arguments of counsel, and the judgement of the court, and included at least a correct outline of the reasons upon which the decision was based."
Crimes Against Property	Geo. III Reign (REF.: 18, p. 492)	England		"Most of the new crimes were those directed against property; and the cause of their imposition was partly the rise to powe of the moneyed class." Stealing was punishable by death, but perjury or assault were not.
Study of English Law at University	1780's A.D. (REF.: 6, p. 83)	England	Lawyers	"English law only became a university discipline in the late eighteenth century."
Penitentiary - Imprisonment	1700 A.D. (REF.: 16, Vol. 22, p. 605)	Rome	Pope Clement XI	The first definite anticipation of the modern prison was popal prison in Rome. Inmates were provided with cells, worked during the day and their reformation was the primary objective of imprisonment.
Full Citation of Authorities by Counsel	1785 A.D. (REF.: 6, p. 279)	England	Counsellors	The term Reports in 1785 "could be cited by counsel and they were not dependent on the longer memories of judges. Haphazard citation gave way to the modern practice of full citation of authorities by counsel."
Ombundsman	1809 A.D.	Sweden	Legislature	The Justitieombudsman was first appointed as an officer of the legislature under the constitution of 1809. His functions of receiving complaint from the people and protecting them against injustice were

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 17, p. 2)			performed even before that date by an officer appointed by the king.
Trial by Battle Abolished	1819 A.D. (REF.: 8, p. 12-13)	England	Parliament	The Statute of 1819 abolished trial by battle. "It marked the surrender of superstition in the administration of justice to a judicial process which was due to the growth of a conception of justice founded on moral and spiritual principles...."
Code of Procedure	1848 A.D. (REF.: 9, p. 390)	New York	David Dudley Field	'New York in 1848 adopted the Code of Procedure prepared by David Dudley Field .... Both 'equity' and 'law' are administered in the same court and with the same procedure."
Equity	1873 A.D. (REF.: 15, p. 302; 6, p. 602)	England	Parliament	"In 1876 it was at last acknowledged that the righteous law must govern in England by giving courts of common law equitable powers, and by enacting that where the common law rule differed from that of equity, the rule of equity should govern."

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NOTES

GENERAL SOCIAL INVENTIONS

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Marriage - Family - Clan - Tribe - Society	Pre-history e.g. Hundreds of thousands of years (REF.: 11, p. 117-118)	Wherever Homo Sapiens lived	Homo sapiens	"Against the exacting climatic background of late Pliocene and Pleistocene times we have to picture animal behaviour evolving into social conduct; kindred groups becoming the exogamous clan within the tribe; instincts and habits of sexual intercourse and mating being more and more artificially directed and circumscribed until any infringement of the code gave rise to a social interplay of condemnation and guilt."
Morals Ethics	Pre-history e.g. 50,000 B.C. (REF.: 1, p. 30)	Wherever Stone Aged man lived	Homo sapiens	"The notion of conscience demands an awareness of a future. The man of the Stone Age must have regretted that he took one road, not the other: this surely is the dawn of conscience."
Religion - Magic, myth, Metaphysics	Pre-history e.g. 50,000 B.C. (REF.: 11, p. 206)	Wherever Paleolithic man lived	Homo sapiens	"As man's consciousness drew him apart from nature, he was bound to turn to look at nature and having contemplated it to seek to explain what he saw, to affect it for his own ends, and finally to regard it with awe and reverence and a desire for reunion."
Life after death - soul	50,000 B.C. (REF.: 5, -. 34-35; 4, p. 50)	La Chapelle Aux Saints in France	Mousterians (Neanderthal man)	Mousterians put their dead in graves normally dug in the cave where the group lived. General attempts were made to protect body. The head sometimes rested on a stone pillow. Graves placed near the hearths as if to warm occupants. Departed provided with tools and meat.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Spirits	50,000 B.C. (REF.: 5, p. 35)	Alpine Caves	Neanderthal man	"Heaps of bones and skulls, particularly of cave bears, have been found deliberately, one might say ceremonially, arranged. The arrangement suggests rituals ... to avert the wrath of the bear spirit and ensure the multiplication of bears to hunt."
Burial of the Dead - Burial rites	50,000 B.C. (REF.: 5, p. 34-35; 4, p. 49-50)	La Chapelle Aux Saints in France	Mousterians Neanderthal man	"Devised and socially sanctified burial rites which they ... hoped would reverse or cancel death."
Architecture	Pre-history e.g. 50,000 B.C. (REF.: 8, p. 1)	Wherever Stone Aged man lived	Homo Sapiens	Originates "in the primitive endeavors of mankind to secure protection against the elements and from attack."
Art	10,000 B.C. (REF.: 5, p. 40-41)	France	Magdalenian Hunters	Pictures of beast were drawn on walls of caves by the magic artist of the tribe in the hope that a real animal would appear in the hunt.
Fashion	8,000 B.C. (REF.: 5, p. 42)	France Spain Africa	All Upper Palaeolithic People	They tried to increase their beauty and enhance their personalities by mutilating their bodies or decking them with ornaments.
Music	8,000 B.C. (REF.: 5, p. 42)	France	Magdalenian man	"Music ... may have played a part in Magdalenian magic, since bone pipes and whistle have been found in the caves."
Drama	8,000 B.C.	Hither Asia Europe	Neolithic man	Neolithic man had an ancient fertility drama. The nuptial union of a 'king' and 'queen' "not only symbolized but also

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 4, p. 86; 5, p. 65)			magically insured and compelled the fertilization of the earth, that she might bring forth her fruits in due season."
Agriculture - Farming	6,000 B.C. (REF.: 5, p. 51)	Jericho (Jordon Valley)	Neolithic man	The "earliest inhabitants supported themselves by hunting and collecting, but also growing crops, watered by a perennial spring, and grazing sheep and goats ..."
Ideographs	Pre 4,000 B.C. (REF.: 5, p. 104)	Sumer	Sumerians	Certain signs were used for things, ideas and words.
Immortality	4,000 B.C. (REF.: 3, p. 137; 4, p. 128; 25, p. 120)	Egypt	Upper Class	From earliest times, the Egyptians took great care in burying the kings and nobles of their country. Food and other items were put in their grave. Burial tombs evolved into great pyramids to protect the king's body and ensure his continued happiness. The art of mummification was invented to prevent annihilation.
Churches - organized sects - priesthood	4,000 B.C. (REF.: 5, p. 87, 92)	Sumer	Priests	The priesthood developed from "secret societes" who monopolized fertility and other rituals. Once recognized as a professional a priest could do "much to give concrete form to imaginary beings and by interpreting must have invented their desires."
Government - concept of the state	Pre 3,500 B.C.	Sumer	Sumerians	Evolved out of the necessity to have an authority in an area in order to mediate

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 5, p. 100; 25, p. 61)			disputes. Was first embodied in one person and later bureaucracy developed around him.
City	3,500 B.C. (REF.: 11, p. 418-420)	Sumer	Sumerians	The Sumerian was compelled by the flooding of the Euphrates and the need for perennial irrigation to co-operate in an elaborate organization. Thus the Euphrates delta was from the outset parcelled out into a number of agricultural-irrigational units each having its own centre of administration. These centres grew into cities.
Slavery	3,500 B.C. (REF.: 11, p. 473)	Sumer	Sumerians	In the wars between the city states, the people who surrendered to the victors became slaves. Laws were developed to protect the slave.
Pictographs	3,500 B.C. (REF.: 11, p. 633,; 20, p. 22)	Sumer	Sumerians	Priests under a heavy load of administering the wealth of the temple used signs in connection with common task of keeping temple accounts.
Indenture	3,500 B.C. (REF.: 11, p. 475)	Sumer	Sumerians	"A bankrupt might himself be enslaved for debts or ... might sell his wife, his son or his daughter into slavery so as to acquire capital to pay off his debts, or might simply hand them over as payment to his creditor." Servitude only temporary, regulated by law.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Medicine - pharmacopoeia - practice of medicine	Pre 3,000 B.C. (REF.: 22, p. 492; 11, p. 693-697)	Egypt and Sumer	Egyptians Sumerians	In both countries, practice of medicine started as magic at approximately the same time. Egypt developed the empirical rational side whereas in Sumer magic and religious practices maintained their dominating influence. Both developed specialists and physicians and prescriptions for disease ...
Geometry	3,000 B.C. (REF.: 5, p. 119;)	Egypt	Clerks	Because of the flooding of the Nile, clerks, by experimentation, figured out geometrical means to calculate farmers plots again. Development of pyramids also encouraged development of geometry.
Standard Weights and Measures	3,000 B.C. (REF.: 5, p. 107; 4, p. 153)	Sumer	Priests Merchants	Because of the rise in the size of a building and amount of craftsmen in construction, a standard size was needed in measuring. The standardization of weights resulted from the need for set units in trade.
Embalming	3,000 B.C. (REF.: 25, p. 120)	Egypt	Upperclass, Priests	The Egyptian's belief in immortality led him to find ways of preserving the body. Mummification was a safe-guard against annihilation of the body.
Armies	3,000 B.C. (REF.: 11, p. 481-482)	Sumer	Rulers	To meet the threat against the city there evolved local citizenry organized and trained for regular warfare although they were not regular soldiers.
Writing - Cuniform	3,000 B.C.	Sumer	Sumerians	Summerians began to write when they began to associate sounds

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 11, p. 634-637)			with the various symbols they used. They began to combine pictograms to form different words.
Calendar - Solar	3,000 B.C. (REF.: 11, p. 680; 5, p. 120; 4, p. 110-111)	Egypt	Officials of King's Court	The calendar was invented as the result of the Egyptians need for an advance notice of the annual Nile flood. Records were kept for fifty years and the results were collated. As a result the calendar was invented with 365 days.
Phonograms	3,000 B.C. to 2,800 B.C. (REF.: 2, p. 20; 5, p. 105)	Sumer	Sumerians	"Using a sign for the sound of a whole syllable, regardless of its picture meaning."
Hieroglyphics	3,000 B.C. (REF.: 11, p. 645)	Egypt	Egyptians	Writing was first invented in Sumer and the Egyptians took over the principle of writing ready made from the Sumerians and so were able to develop their writing in a very short space of time.
Factories	3,000 B.C. (REF.: 11, 592-594; 4, p. 115)	City States of Sumer (Ur, Sippar)	Sumerians	There were private, royal and temple factories set up to produce goods for local consumption and for export.
Dictionaries	2,800 B.C. (REF.: 5, p. 107)	Sumer	Sumerians	Begun as simple records of the conventions agreed upon.
Literature	2,800 B.C. (REF.: 11, p. 797-818)	Egypt, Sumer	Authors Unknown	Sumerians wrote hymns, myths, and epics. Egyptians write hymns, poetry and proverbs.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Book	2,800 B.C. (REF.: 6, p. 85-86, 115-116)	Egypt	Egyptians	Since papyrus was easier to work with, the 'book' must have been invented in Egypt soon after writing has been introduced. (Sumerian 'books' date to 2,500 B.C. and consisted of a series of tablets. Egyptian 'books' were papyrus roles.)
Taxation	2,700 B.C. (REF.: 20, p. 46)	Sumer	King, Temple Officials	Priests let out part of the temple lands to private individuals. This permitted the accumulation of wealth in private hands. As a result both king and priests taxed citizens on all aspects of life and death.
Medicine - Surgery	2,550 B.C. (REF.: 11, p. 692-693)	Egypt	Egyptians	More scientific medicine started with the practice of mummification. The Egyptians did not consider it sacrilegious to dissect a corpse. They made careful studies of anatomy and noted the general similarity of organs of men and beasts. Developed directions for treating wounds and fractures.
Archives	2,500 B.C. (REF.: 6, p. 82)	Sumer	Priests Clerks	In part of the Sumerian libraries, "all documents relating to business transactions ... were filed. Royal decrees and correspondence, lists of taxes and official chronicles, would probably be placed in a special record office of the palace."
University	2,500 B.C.	Sumer	Priests	Schools of higher education were called houses of wisdom. Higher education included linguistics, theology, magic

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 6, p. 99)			arts and medicine, astronomy and mathematics. Usually associated with a temple.
Library	2,500 B.C. (REF.: 6, p. 99)	Sumer	Priests	Developed for schools of higher education, usually attached to temples. Collected books on various subjects.
School	2,500 B.C. (REF.: 13, p. 2)	Sumer	Priests	"First established for purpose of training the scribes required to satisfy the economic and administrative demands of the land, primarily those of the temple and palace." Often attached to temple.
Multiplication Tables	2,500 B.C. (REF.: 4, p. 159)	Sumer	Research Organizations at Temple	Sumerians were dependent on trade. Mathematical tables were developed to speed addition of figures, thus increase the volume of foreign business.
Courts of Law	2,400 B.C. (REF.: 11, p. 497)	Sumer	Priests	"The law courts were but a department of the divine government and would therefore naturally be directed by the god's servants; and further, since all land in theory and a vast proportion of it in fact, belonged to the god, most economic questions would be of direct concern to him and would be regulated by priests."
Code of Law	2,100 B.C. (REF.: 9, p. 56)	Sumer	Sumerian Rulers	"The urge to regulate society by written ordinances had long been felt in Sumer." By 2,100 B.C. laws were beginning to be stated in written form.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Professional Soldier	2,100 B.C. (REF.: 11, p. 483)	Babylon	Sarong of Akkad	To conduct campaigns as far away as Cappadocia and the Mediterranean coast a professional army was developed.
Astronomy - Astrology	2,100 B.C. (REF.: 11, p. 689	Sumer	Priests	Sumerians amassed astronomical data with the aid of their mathematics. "The earliest computations were concerned with (a) the duration of day and night in the different seasons (b) the rising and the setting of the moon and (c) the appearance and disappearance of Venus."
Professional Administrator - civil service	2,100 B.C. (REF.: 20, p. 56)	Sumer	Ruler Ur-nammi	The Ensis or the bailiff of the city diety "became governors rather than ruling local dynasts. The control of garrisons was taken out of their hands .. acquiring too much power ... was reduced by the practice of posting such officials from one city to another."
Guilds	2,200 B.C. (REF.: 11, p. 573)	Sumer	Craftsmen	"To protect himself against undue competition; it must not be too easy for others to learn what he learnt, to profit by what he made; the number of craftsmen must be kept within reasonable limits and the secrets of the trade jealously guarded."
Mail - letters	2,200 B.C. (REF.: 20, p. 56; 17, p. 276-280)	Sumer	Ur-Nammu	Letters carried by royal messengers kept the king informed on state matters.
Punishment for crimes	2,100 B.C. (REF.: 20, p. 194)	Sumer	Sumerians	Penalties were either death or a fine, though mutilation was sometimes used. Person was imprisoned only to await his trial.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Welfare	2,100 B.C. (REF.: 5, p. 137-138; 11, p. 625)	Egypt	Egytian Rulers	From the walls of tombs, examples of rulers giving things to poor. Egyptian farmers seed in event of a crop failure.
Judgement of Souls	2,100 B.C. (REF.: 11, p. 722; 5, p. 137-138)	Egypt	Upper Class	The Egyptian became more socially conscious "and in the tomb texts much emphasis is laid on ... the dead man's righteous dealing with his fellow man."
Concept of 360° circle	2,100 B.C. (REF.: 9, p. 49)	Sumer	Priests	Concept arose out of astronomers trying to divide a circle into parts.
24 hour day 24 hour clock	2,000 B.C. (REF.: 5, p. 108)	Sumer	Sumerians	"The organized co-operation of an urban population requires more accurate divisions of time than are needed in a rural village."
Fractions	2,000 B.C. (REF.: 4, p. 160-161)	Babylon	Temple Schools Scribes	"Practical problems ... such as even the division of rations among workmen .. forced them to deal with fractional quantities."
Hell	2,000 B.C. (REF.: 25, p. 122)	Egypt	Upper Class	Immortality was open to everyone. "Osiris became the judge who determined whether or not an individual might proceed to the celestial regions. Those whom he refused to pass apparently stayed in the old world a place full of serpents, crocodiles, and fire."
Prostitution	1,950 B.C.	Sumer	Sumerians	The earlist law codes had regulations for the place of the prostitute in the society and the children she might have by man.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Adoption	1,800 B.C. (REF.: 20, p. 171)	Sumer	Sumerians	"A child might be adopted by a childless couple as their own heir and legislation for such a situation is found in ancient law codes ...."
Medicine - Code of ethics	1,800 B.C. (REF.: 3, p. 40)	Babylon	Hammurabi	Hammurabi collected all the codes of law in existance and set down one general code. "Established for the first time the concept of the penal and civil responsibility of the physician."
Divorce	1,800 B.C. (REF.: 20, p. 208)	Babylon	Hammurabi	Laws for divorce first appeared in Hammurabi's code although it might have been in existence longer.
Algebra	1,800 B.C. (REF.: 11, p. 674)	Mesopotamia	Mespotamians	Sumerian notation and arithmetic technique made possible the higher developed form of algebra of the Babylonians. They carried on the work of the Sumerians.
Alphabet	1,500 B.C. to 1,400 B.C. (REF.: 7, p. 115; 16, p. 24)	Ugarit - Palestine	Phoenicians - Canaanites	Began as a tool of traders and men of business who were looking for a simpler method of keeping books. Came into general use after priests and merchants agreed on the sound associated with each character.
Coinage	700 B.C. (REF.: 5, p. 192)	Asia Minor	Lydians	The need for "pieces of metal of a fixed shape and standard weight stamped and guaranteed by the state as to both quality and weight" for use in trade brought on invention of coinage.
Hospital	600 B.C.	Epidaurus Greece	Priests	The temple at Epidaurus was one of the first to be built

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 23, p. 61, 73)			dedicated to the Greek healing god Asclepius. A hostel was attached to this temple where sick people could come and be treated by the priests.
Service Club - Cult of gods	600 B.C. (REF.: 23, p. 73)	Epidaurus	Greeks	Wealthy patients who had been cured at the temple of this cult "continued to patronize them, make generous donations, and distribute alms among poor pilgrims."
Republic	600 B.C. (REF.: 24, p. 102)	Greece	Aristocrats	The king was forced to reply on council of elders made up of prominent members of the most powerful clans. They gradually forced out the king completely.
Strike	490 B.C. (REF.: 5, p. 208; 2, p. 101)	Rome	Plebs	For safeguards for debtors, right to intermarry with patricians, right to vote.
Concept of zero	300 B.C. (REF.: 5, p. 245)	Babylon	Mathematicians	Babylonian mathematicians agreed on a sign for zero.
Practice of Law	100 B.C. (REF.: 21, p. 181)	Rome	Public servants	"The duties of the praetor in Rome could hardly be administered by one not bred in the law."
Historiography	300 B.C. (REF.: 10, p. 521)	Greece	Hecataeus	The Greek mind under the influence of science and rationalism "assumed a critical attitude towards the traditions of poetry and mythology and thus created historical science."
Museum	629 B.C. (REF.: 10, p. 704)	Athens	Athenians	"Originally a place connected with the muses (q.v.) or the arts inspired by them."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 31, p. 132-3)			The first Public Museum was the British Museum established in 1753 "whereas all arts and sciences have a connection with each other, and discoveries in natural philosophy and other branches of speculative knowledge for the advancement and improvement may give help in useful experiments."
Democracy	510 B.C. (REF.: 2, p. 61)	Athens	Cleisthenes	After gaining back control of Athens, Cleisthenes instituted sweeping constitutional changes.
Organized Crime	11th Century (REF.: 33, P. 201-2)		Hasan ibn-al-Sabbah	Inspired and directed a great band of devoted, hashish-drunken followers. Demonstrated that when associated crime is well organized and carefully directed, ordinary methods of protection are powerless to cope with it. The word "assassin" was derived from his name.
Licence	1,488 A.D. (REF.: 12, p. 251-262)	Canterbury England	Civic Government	"A regular system of licensed retailers seems to have been adopted when it was complained that brewers and bakers went to live outside the town to escape enforcement of the assize..."
Newspaper Avisa, Relation, oder Zeitung	1609 A.D. (REF.: 31, p. 247)	Augsburg Germany		The newspaper arose in Germany where the appetite for news was greatly stimulated by the battle over the Reformation, fought as that was, like a modern election.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Universal Language	1629 A.D. (REF.: 31, p. 155)		Unknown but reported by Descautes	An alphabet of characters somewhat similar to mathematical symbols and subject, like them, to manipulation in order to solve problems.
Encyclopaedia	1630 A.D. (REF.: 31, p. 327)	Herborn Nassau	J.H. Alsted	In seven volumes published in Latin.
Political Party	1641 (REF.: 32, p. 4)	England		The abolition of episcopacy was proposed to Parliament and two parties stood opposed to one another in the House of Commons, not merely on some incidental question, but on a great principle of action which constituted a permanent bond between those who took one side or the other.
Reduction in number of religious holidays	1642 A.D. (REF.: 31, p. 389)	Rome Italy	The Pope	The frequency of religious holidays had handicapped industrialization in Catholic countries.
Social Statistics	1693 A.D. (REF.: 31, p. 62)	Breslau	Edmund Halley	An estimate of the degrees of mortality of mankind, drawn from the tables of births and deaths with an attempt to ascertain the price of annuities. He found that of every 1000 live births, 145 died during the first year so it was 6 to 1 that any child would live to age 2.
Freedom of the Press	1694 A.D. (REF.: 31, p. 412)	England		

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Union - trade (Labour)	1699 A.D. (REF.: 18, p. 19-20)	England Newcastle	Keelmen: Lighter men in coal industry	Workmen began to combine for purpose of mutual insurance against sickness, old age or death.
Exploration	1699 A.D. (REF.: 31, p. 84)		William Dampier	The British government put him in command of one of the first vessels ever sent out for the sole purpose of adding to knowledge. He explored Australasia and New Guinea.
Scientific Method	1700 A.D. (REF.: 31, p. 35)			"The establishment of the scientific method as the key to discovery led gradually to the subjugation of institutions, politics, religion education, psychology, and esthetics to the yoke of physics."
Public Circulating Libraries	1700 A.D. (REF.: 31, p. 318)	Boston, New York		
Penitentiary	1700 A.D. (REF.: 15, p.)	Rome	Pope Clement XI	
Postal Directory	1708 A.D. (REF.: 31, p. 89)	Paris	A.H. Jaillot	The postal directory of France contained maps and illustrations of natural features and industries of the region.
First Comparative & Historical Ethnology Book	1724 A.D. (REF.: 31, p. 104)		J.F.Lafitau	"Manners of the American savages compared to the manners of primitive times."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Repeal of laws against Witchcraft	1736 A.D. (REF.: 31, p. 452)	England and Scotland		This law like most others, lagged far behind public opinion, which had been converted, for the most part, half a century before.
Enlarged Franchise	1769 A.D. (REF. 31, p. 178)			
Public Meetings	1769 A.D. (REF.: 31, p. 178)	England		Popular meetings began to express public opinion and soon became a regular and important organ of English political life.
Hypnotism	1843 A.D. (REF.: 26, p. 68)	England	James Braid	"Initially skeptical toward the phenomena of mesmeric sleep, he began his own experiments; he became convinced that genuine sleep can be induced by a fixed stare at a bright inanimate object." In 1843 he published a book, "introducing the term neurohypnotism or hypnosis..."
Model Housing-Model Development Societies	1844 A.D. (REF.: 27, p. 451 g)	England	Upper Class	"In 1844, the Society for Improving the Condition of the Laboring Classes opened its first model houses in England."
Professional Housing Management	1864 A.D.	London	Octavia Hill	"In 1864, she initiated her experiment in housing management with three houses in London. She set out to prove that if tenements were kept in as good condition as possible by competent, interested managers, the resulting efficiency and economy would not only be financially beneficial to the owners but would also set

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
	(REF.: 27, p. 451 h)			an example of order, cleanliness and decency to the tenants..."
Employment Agencies	1891 A.D. (REF.: 28, p. 351-2)	New Zealand	Government	"The New Zealand Government, for example, established exchanges as long ago as 1891. Note: "The municipal and state systems of Germany, established before the turn of the century, served as a model for the British agencies." No other information could be found on the German system.
Pre-Planned Large-Scale developments-Garden City Movement	1903 A.D. (REF.: 27, p. 451 i)	Letchworth, England	Sir Ebenezer Howard	"He conceived of a series of garden cities, with populations of around 30,000 each, surrounding a larger central city and separated from it and each other by generous green areas. Each of these garden cities would contain industries. Their pre-planned layouts would be maintained and overcrowding avoided by the elimination of speculation in land through communal ownership."
Group Therapy	1905 A.D. (REF.: 29, p. 804)	not available	Joseph J. Pratt	"Though foreshadowed as early as 1905 by Joseph J. Pratt's group treatment of tuberculosis patients, only a few physicians practised group therapy before World War II. The large numbers of soldiers requiring psycho-therapy compelled psychiatrists to try to treat them in groups, and the use of group methods proved so effective that they developed rapidly in the postwar years."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
International Control of Drugs - Hague Opium Convention	1912 A.D. (REF.: 30, p. 32)	Hague	Pres. Theodore Roosevelt	"The Hague Convention required each adhering power to control its production, importation and exportation of raw opium and coca leaves, as well as to regulate its own domestic manufacture, distribution and use, to confine the latter to legitimate medical purposes."
Laws for Control of Drugs	1914 A.D. (REF.: 30, p. 32)	Washington, U. S. A.	Government	"In the early 1900's a number of states passed prescription laws. To aid in the enforcement of these laws and to provide the regulation required by the 1912 Hague Convention, Congress in 1914 passed the Harrison Narcotics Act."
Psychodrama	1918 - 1923 A.D. basic principle formulated-brought to America 1932 (REF.: 29, p. 806)	Germany	J.L. Moreno	"In this method patients more or less spontaneously dramatize their personal problems before an audience of fellow patients and therapists, some of whom also participate in the dramatic production itself. The dramatization is followed by discussion between players and audience."
'Sit-in'	Feb. 1960, A.D. (REF.: 31, p. 291)	Greensboro, North Carolina	Negro College Students	"In February 1960, Negro college students in Greensboro, N.C., began to 'sit-in' at white lunch counters that refused to serve them. Soon the technique spread throughout the South...."
'Freedom Riders'	May, 1961, A.D. (REF.: 31, p. 291)	Southern United States	Congress for racial equality	"Groups of white and negro 'Freedom riders', in an experiment sponsored by the congress for Racial Equality, made several trips through the south by bus to test the right of travellers in interstate commerce to use unsegregated methods of transport, including terminals."

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Marching and Demonstrating	1962 A.D.	Albany, Ga.	Negroes	"In 1962 the Negroes of Albany, Ga., began to call attention to their situation by marching through the streets and holding mass meetings."

(REF.: 31, p. 291)

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INVENTIONS OF SASKATCHEWAN NEWSTART/THE TRAINING RESEARCH AND DEVELOPMENT STATION

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Inter-jurisdictional corporation	1967	Ottawa	Canada Dept.of Manpower & Immigration and the Depts. of Education of Saskatchewan, Alberta, Nova Scotia and Prince Edward Island.	NewStart corporations were formed as semi-autonomous, non-governmental agencies to experiment in adult training methodology (a provincial jurisdiction) and the recruiting, motivation and employment of adults (a federal jurisdiction).
Life Skills training	1969	Prince Albert	Ralph Himsl Mary Jean Martin	A course was devised to teach problem solving behaviors necessary to manage one's life responsibly and appropriately in the following areas: self, family, community, leisure and job.
Life Skills Coaches	1969	Prince Albert	Ronald Friedman	Social technologists in social institutions training people in skills of managing their lives.
Individual managed instruction	1969	Prince Albert	V. W. Mullen E. Evancio	An individualized learning program in mathematics and communications for adults, comprising diagnostic tests, learning prescriptions and accomplishment tests.
Spiral curriculum in business management	1970	Prince Albert	J. A. Jeanneau	A course in small business management for people who have had no previous experience in business.
Individualized literacy program	1971	Prince Albert	Naida Waite	Individualization was made possible by the development of a tape-text method of instruction. The student listens to an explanation on audio-tape and responds to questions or instructions while he looks at the text. A system of "cueing" was devised to teach the pronunciation of words with irregular spelling.

SOCIAL INVENTION	WHEN	WHERE	WHO	WHY
Socanics	1971	Prince Albert	D. Toombs R. Geoffrion	Skilled workers in social institutions trained in skills that are generic to a wide range of agencies involved in the development of human resources.
Training Research and Development Station	1972	Prince Albert	Dept. of Manpower and Immigration	A human resource development research station created as a regular part of a government department.
Generic Skills	1973	Prince Albert	Arthur Smith	The identification of basic mathematics, communications, reasoning and interpersonal behaviours actually required in the performance of jobs and the specification for individualized training.
Tape-text language course	1973	Prince Albert	Naida Waite	Many students learn literacy in a second language in high school. This course builds on the literacy by providing students with audio cassettes and texts of material in the second language. In the initial parts of the course the tapes contain expanded speech to help the students identify the sounds at modest speed.
Curriculm-based vocational counseling system	1974	Prince Albert	Glen Tippett Vern Mullen James Williams	A vocational counseling course that helps the student develop a positive knowledge of self, decision making skills, knowledge of occupations relevant to his characteristics and job search technique
Language training through recreation	1974	Prince Albert	Dana Mullen	A recreation program designed to teach a second language in which the vocabulary and language structure can be learned in relation to physical and social activities.

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The above noted manuals may be obtained from Information Canada Publications Satellite, P. O. Box 1565, Prince Albert, Saskatchewan, Canada, with the exception of item no. 1.

FUTURE SOCIAL INVENTIONS

The purpose of this book is to demonstrate that values and ideals need social inventions if they are to be realized. Many existing social inventions are capable of implementing society's aspirations, but additional inventions are needed in law, education, welfare, corrections, mental health, psychology, democracy and government. In an effort to identify the number of such social inventions that have been predicted, the Futures Group was asked to examine the thousands of future predictions that it has collated and it produced a listing of 300 future social events.[1] Of these, only 53 represented new social inventions which is further evidence of the extent to which the entire field of social technology has been ignored in formulating social futures.

The list prepared by the Futures Group included the following:

Reference Number

1 Narco Pedagogy.

2 Development of simulators to provide technical training to mentally and physically handicapped people to prepare them to return to society.

3 Discipline-Oriented Learning Centers.

4 Twenty percent of all homes equipped and employing "on demand" audio-visual retrieval of information.

5 Specific knowledge of how to stimulate cognitive growth to maximal ability in preschool children.
Consequences:
a. Increased human capacity and performance.
b. Adults being more self-aware and wise;

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[1] The Futures Group, Social Inventions: A Compilation of Forecasts, Glastonbury, Connecticut, 1974, 81 pp.

Reference Number

greater societal emphasis on intellectual pursuits.
c. Increased scientific and technological progress.
d. Modification to the educational systems (such as development of schools for the treated and untreated starting school at the age of 3, and so on).
e. Children developing intellectual capacities more rapidly (present age 20 at 12).

6 Use of electronic links between the human brain and a machine (symbiosis) to improve human cognitive abilities and enhance the learning process.
Consequences:
a. More use of technology.
b. More individualized curricula.
c. More information assimilated.
d. Development of mentally handicapped.

7 A global electronic university is created.

8 Worldwide zoning ordinances.

9 The productive portions of the ocean are claimed, colonized, and annexed to various nations.
Consequences:
a. Long-range research on the ocean as a resource has strong political support.

10 Acquisition of all urban land by the government.

11 Some direct control of individual thought processes.

12 International legislation standards of control on pollution of the high seas and oceans.

13 Legislation of "no-fault" divorce laws.

14 Voiceprints supplant fingerprints in crime control.
Background: Characteristic frequency distributions of each voice are unique.

15 Crimes without victims (gambling, prostitution, etc.) are removed from the books.

16 Implementation of a home voting system for instantaneous nation-wide electronic vote tabulation.

17 Some middle-class residential areas become "secure enclaves" (i.e., closed circuit television monitors, guards check each visitor, electronic locks, and patrols).

Reference Number	
18	Require couples to undergo psychological compatibility tests and marital counseling before a marriage license is issued.
19	Reduction of uncertainty in politics by instant, inexpensive mass polling.
20	Development of procedures for direct action and demonstration by those dissatisfied with existing conditions.
21	Development of electrical implants for regulating behavior.
22	Legal reclassification of much antisocial behavior having to do with alcoholism, drugs, sex, violence, and suicide in recognition of these as medical, social-psychological problems rather than matters of individual volition and moral depravity.
23	Legal handling, institutional auspices, and custodial care of those with reclassified social pathologies (i.e., behavior no longer considered criminal) are removed from law-enforcement-judicial system.
24	Development of effective means of identifying crime-prone individuals.
25	Establishment of a new class of crimes, as those which hurt multivictims and/or uncertain victims, such as pollution or irresponsible business practices.
26	Retention, dissemination or utilization of misinformation about debt payments, medical histories, educational training, etc., is a new category of crime.
27	Development of computer programs which adequately simulate social systems in several situations.
28	Minimum annual income guaranteed by government.
29	Computerized system for matching personality traits, basic capabilities, ambitions, education, and training as they relate to job opportunities.
30	All administrative aspects of the job-matching system are computerized.
31	The average age at retirement is 60 years.

Reference Number

32 Improved economic status of nations senior citizen population produces dynamic "retirement market."

33 Mandatory cost-of-living allowances which require employers to give raises if the cost-of-living increases.

34 Most retail transactions are computerized all the way through the individual's bank account.

35 True international unionism throughout the world.

36 Employers offer employees educational facilities, progressive psychologists, and sensory gratification chambers.

Consequences:

a. Decrease in importance of certain economic indicators (e.g., GNP, productivity).
b. "Work" redefined by and within corporations.
c. Efficiency no longer a prime consideration.
d. Indicators of social function and status become important.
e. Dilettantism flourishes.
f. Demand for universities and specialized information services.

37 White collar and clerical employees begin to abandon "the office" in favor of neighbourhood remote work centers.

38 "Life-span contracts" enable employees to redistribute periods of work and leisure over periods of time as long as twenty years.

39 Most employees gain the right to participate in decision making as an aspect of "fair labor standards."

40 30-day vacations apply to at least half of all employees.

41 Negative income tax or guaranteed annual income greatly reduces poverty.

42 Development of a computer-controlled pleasure salon (a room that can adjust temperature, humidity, brightness, color and tone in response to man's changes of mood).

43 Licensed parenthood begins (license and test are required of who wants to become a parent).

Reference Number	
44	Communes change social structure to suit individuals; in past, "deviant" individuals changed to suit "sick" social structure.
45	Group, or "multilateral" marriage becomes legal.
46	Revision of welfare laws to make it advantageous for the male head of the household to remain in the family when the family is on welfare.
47	New value system stresses being, becoming, knowing and being known, caring and being cared for, in contrast to previous one of productivity, success, efficiency.
48	Formation of communers federations.
49	Redefinition of "dependent" to permit recognition of new kinds of family relations (probationary marriages, communal arrangements, etc.).
50	New types of marriage contracts are accepted and ratified by law.
51	Renewable trial marriages for 3-5 years are legitimized.
52	Legalization of compound marriages, whether they be polygamous, polyandrous, or group marriages.
53	Limiting of family size through legislation (i.e., economic sanctions, etc.).

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